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ICTs Role in QoL

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Synonyms

- ▶ [Digital quality of life](#)

Definition

Information and communication technologies (ICTs) are a key enabler of innovation and major improvements in our lives, whether we consider the individual dimension or the impacts at wider, societal scale, for example, public safety, education, healthcare, governance, and administration. Therefore, ICTs role in QoL refers to how the use of ICTs makes our lives better and how ICTs become a critical component of solutions to several social challenges (e.g., the use of technologies for the compensation of impairments, integrated management of energy networks to enhance efficiency, and comprehensive databases of geographic information systems). To achieve such goals, it is important that the right environment for digital progress is in place, for example, affordable and widespread digital infrastructure, digital literacy, availability of digital content and applications, and collaboration between private and non-profit sectors. Furthermore, from a technical perspective, what sustains the transformative potential of ICTs is both the availability of low-cost sensors, processors, and data storage devices – which collect, store, and process vast amounts of digital information – and the development of high-speed broadband networks, which enable global communication flows and an effortless transfer of data.

Description

Beyond the epistemological divide that typically opposes techno-optimism (Gilder, 1989) (the belief that technological progress is right and positive) to techno-pessimism (Postman, 1993) (the belief that technological progress embodies an agenda of domination by oppression), any consideration of ICTs role in QoL cannot be separated from the fact that, in contemporary societies, it becomes ever more difficult to divorce the human from the technological.

Consequently, some sort of middle-ground approach is necessary to fully describe ICTs role in QoL – one that fundamentally accepts the transformative nature of technology while maintaining the focus on the synthesis between the human and the social.

The description that follows is therefore aligned with a sociotechnical perspective (Mumford & Ward, 1968; Willcocks & Mason, 1987), in that it acknowledges the variations in context for the development and application of technology and takes notice of the human and social dimensions of society in the design of technologies and technical systems that improve QoL.

QoL is understood here as an umbrella concept, which aggregates the constructs of welfare, wellness, happiness, well-being, and life satisfaction. Over the years, the concept has attracted the interest of multiple disciplines such as economics, sociology, medical sciences, philosophy, psychology, or management. The literature suggests that this profusion, expressed in the variety of related terms, contributes to the hardness of finding both an agreed-upon definition of the concept and a consensual measurement instrument (Mickel, Dallimore & Nelson, 2008).

Even prominent measurement instruments such as the Human Development Index (UNPD, 1990) – which combines income per head, education, and life expectancy indicators – are criticized for aiming at the unattainable, that is, a comprehensive measure of QoL (Veenhoven, 2006).

One of the most cited and crystalized definitions of QoL has been advanced by the World Health Organization, although its focus derives

mainly from a medical sciences approach: QoL is “an individual’s perception of their position in life in the context of the culture and value system in which they live and in relations to their goals, expectations, standards, and concerns” (The WHOQOL Group, 1995).

Other conceptual elaborations of QoL are grounded on the identification of core quality characteristics, typically ordered on the basis of a distinction between “opportunities for a good life” (dependent on the livability of the environment vis-à-vis the individual’s life-ability) and the “outcomes of life” (dependent on the individual’s evaluation of the utility of life vis-à-vis the perceived enjoyment of life) (Veenhoven, 2000).

These dominant conceptions of QoL have informed the development of policy and given rise to two main streams of research: one that is eminently concerned with the examination of quality of life at society/country/cross-country level and another one related to individuals’ perceptions and self-reported well-being experiences (Drobnic, Beham & Präg, 2010).

But it is the apparent shift from the belief that scientific and technological progress alone would result in improved well-being toward an understanding of societal well-being as emerging from the combination and integration of technology, values, and socioeconomic context that is of greatest relevance in the analysis of the links between ICTs and QoL.

Therefore, a more holistic approach to QoL tends to conceptualize well-being as a process in which technological innovations are accompanied by social innovations, the consequence being the forging of “sociotechnical system innovation[s]” (Brooks, 1982).

A fresher take on social innovation relates it to “deliberative interventions designed to initiate and establish future developments concerning technology, economics, and social practices” (Howaldt & Schwarz, 2010).

This perspective informs and sets a more contemporary framework for the intersection of ICTs and QoL, since a strategically oriented application of the former can generate value for individuals and communities through “improving our access to information,” “letting us know more

things in real time,” “letting us monitor our homes and loved ones,” “letting us enjoy higher-quality goods and services,” “making our lives safer,” “improving accessibility for people with disabilities,” “facilitating communication,” and “holding organizations accountable” (Atkinson & Castro, 2008).

In other words, ICTs role in QoL is transformational, because new technologies can be converted into new knowledge and new global services that contribute to “more intellectual capital, social capital, economic growth, and enhanced quality of life and cultural engagement” (Shapson, 2009).

The following examples refer to the innovative use of ICTs motivated by the goal of meeting social needs and enhancing individuals’ and society’s QoL. For presentational purposes, they have been grouped into three clusters: planning and management, infrastructure, and human dimension.

Planning and Management

Planning and management refers to creating and carrying out ways for societies to realize their full potential while maintaining efficient operations. Achieving such goals requires holistic thinking about operational insight across different areas of action, such as emergency management, government administration, or urban planning.

An example of how the use of ICT facilitates planning and management can be found in novel approaches to tackle congestion and transportation challenges. To mitigate the consequences of increasing levels of vehicle owners on the urban transportation problem, smart mobility solutions can help enhance drivers’ commuting experience. ICTs can make parking within cities easier, with the availability of wireless sensors that help drivers locate vacant parking spots (Swedberg, 2007).

On another level of planning and management, predictive policing systems have been used to derive insights and uncover trends before the emergence of criminal events. In Memphis, Tennessee, predictive policing uses algorithms to predict where crime is likely to occur and sends additional law enforcement patrols into those areas. The basis of the system is the

determination of crime hot spots through computational modeling and processing of historical data (Vlahos, 2012).

Infrastructure

Infrastructure services are what make the environment livable. They encapsulate the fundamental services that account for citizens’ and businesses’ necessities. This includes the management of utilities, the efficient administration of transportation networks, or the optimization of operations to minimize environmental impact while improving social outcomes.

An example of how ICTs enhance QoL through the efficient management of key infrastructure is the implementation of water management systems, which typically create a holistic view of water and wastewater by aggregating, integrating, and visualizing key data such as flow and pressure. In the USA, a smart water management system is helping the Sonoma County Water Agency meet California’s goal for all water agencies in the state to reduce water use (Hidaka, Jasperse, Kolar, & Williams, 2011). The system is designed to optimize water management by delivering integrated insights into water and wastewater operations, namely, through a real-time collaboration platform that measures water flow, thus helping to balance agricultural and environmental needs in the Russian river water system – the primary source of water in the region. This ICT solution derives insights from data to help a utility manage pressure, reduce consumption, and better manage water infrastructure, assets, and operations.

Human Dimension

Services that enhance the human dimension are mainly supportive of the needs of citizens as individuals. They can operate as developmental foundations or be instruments to social assistance. This is mainly the territory of welfare technology, defined as “a generic term for a heterogeneous group of technologies” (Hofman, 2012) with diverse purposes, namely, communication support, disease monitoring, rehabilitation, remote treatment, or emotional support, among others.

The related concept of quality of life technology refers more explicitly to “intelligent systems that augment body and mind functions for older adults and people with disabilities” (Kanade, 2012). Cutting-edge research on robotics planning, for instance, has created a life-sized humanoid robot that performs daily chores (kitchen tasks, sweeping, clothes handling, etc.), thus advancing an assistive solution that responds to the societal challenges of an increasing proportion of seniors, compounded by a mounting number of single-person households (Yamazaki et al., 2012).

Cross-References

- [Communication, Computer-Mediated Support, and Satisfaction with Health](#)
- [Happiness](#)
- [Quality of Life](#)
- [Social Innovation](#)
- [Well-Being](#)

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Ideas of Think Tanks

- [Program Planning](#)

Identical Twin

- [Twinship](#)

Identity Change

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Definition

Identity change refers to the change of individual's self-concept that can occur in response to changes in life conditions (Banaji & Prentice, 1994). It is a fundamental aspect of human development during life span (Cross & Markus, 1991) often associated either with periods of life transition (Kerpelman & Lamke, 1997), as, for example, marriage, childbirth, and ► bereavement, or to educational and socioeconomic activities such as finishing school, retirement, or starting a new job. During a transition phase, a person has to cope with changes in daily life, which are often connected with changes in identity (Cigoli & Scabini, 2006).

Description

Very often, the starting point of identity change is a situation of conflict between identity and environment (Adams & Marshall, 1996; Berzonsky, 1990; Kerpelman, Pittman & Lamke, 1997). People generally try a first step to solve this conflict by changing the situation (the environment), and only at a second time they consider to change their identity, adapting it to the new situation (Bosma & Kunnen, 2001).

Breakwell (1986) describes identity change as the result of cognitive processes of assimilation and accommodation. Assimilation is the process by which individuals incorporate new identity elements into their self-concept, for example, a woman who becomes a mother absorbs this new identity content into her self-concept. Accommodation refers to the adjustment and

reorganization of identity based on the new information, as when an individual assimilates the new identity element "mother" and reevaluates or reinterprets existing identity contents in relation to the new content and vice versa.

Research on antecedents of identity change has become increasingly concerned with how cognitive images may guide identity change processes of assimilation and accommodation. In particular, scholars have focused on a specific kind of image of oneself, the self in the future referred to as possible self (Markus & Nurius, 1986). Possible selves (Markus & Nurius) are those selves that individuals expect to become (expected selves), would like to become (desired selves), or are afraid of becoming (feared selves). Possible selves, thus, derive from one's goals, aspirations, motives, and ► fears and can be described as the future-oriented components of self-system (Markus & Ruvolo, 1989), representing the potential for change in identity.

Existing studies into the role of possible selves in the process of identity change have focused mainly on their role in the process of identity assimilation. In the assimilation process, a particular possible self can be seen as the potential new identity content that an individual desires/fears/expects to assimilate into his/her identity. Very few studies have considered the role of possible selves in the accommodation process which accompanies the assimilation of a new identity element. An exception is Manzi, Vignoles, and Regalia (2010) study in which pre-transition desires and expectations about the accommodation of identity predicted post-transition actual identity structures.

Oyserman and James (2009) investigated the condition under which possible selves drive identity change. These are (1) the possible self is salient (if people are engaged in a behavior without considering their desired selves, it is less probable that the desired self will influence that decision), (2) the gap between present and possible self is clear (if possible selves do not differ much from current selves, increased effort seems unnecessary), (3) the possible self seems attainable or preventable (individuals are unlikely to engage in self-regulatory behavior when

certainty of attaining possible self is either too low or when certainty is too high), (4) the possible self is linked to strategies (possible selves matter not only because they focus attention on the future but also because they link vivid image of oneself in a future state to current action), and (5) the possible self and the strategies feel congruent with important social domains (when the possible self converges or matches with other aspects of the self-concept, like important social identities or relevant stereotypes about in-group, strategies are more likely to be effective).

Changes in identity toward or away from a possible future self can be expected to affect quality of life in several ways. In particular, individuals will feel either positively or negatively about themselves depending on the extent to which they achieve particular desired self-concepts or avoid particular feared ones (Markus & Nurius, 1986).

However, regardless of whether identity change leads to desired or undesired selves, change itself may influence levels of ► **well-being** for the reason that it requires accommodation processes, in which individuals have to restructure their identities. Identity changes can have both positive and negative outcomes. Some identity changes can be positive when they provide individuals with new opportunities and experiences. For instance, entering university offers students an opportunity to deepen their knowledge and make new friends. On the other hand, identity changes may also be negative experience when involving negative outcomes. According to Packer, Chasteen, and Kang (2011), identity change can have negative effects on well-being if the individual has to leave an important part of his/her identity (e.g., retirement), but these effects are mitigated if individuals gain another significant identity (e.g., being a grandparent). Iyer, Jetten, and Tsivrikos (2008) propose that a large network of social identities provides a buffer against the negative consequences of taking on a new identity: firstly, because in-group members can offer concrete support to help individuals cope with the difficulties of taking on a new identity and, secondly, because people with larger networks are likely to

have more identity resources to use in the process of taking on a new group membership. It seems that the more identities individuals have, the more willing they are to take on a new identity and the more they manifest ► **psychological well-being**. Conversely, when an identity network is perceived to be incompatible with the new identity, an individual sense of self-continuity is expected to be disrupted. Incompatibility between an identity network and a new group membership is likely to have negative consequences for well-being, as it makes it especially difficult to adjust to changes.

Cross-References

- [Bereavement](#)
- [Changes in Quality of Life](#)
- [Fears](#)
- [Grandparenting](#)
- [Life Transitions](#)
- [Psychological Well-Being](#)
- [Well-Being](#)

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Identity Motives

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Synonyms

Identity needs; Identity principles; Self-evaluation motives

Definition

Identity motives are defined as *strivings toward certain identity states and away from others, which guide the processes of identity definition and enactment* (Vignoles, 2011).

Description

Theorists have proposed that identity construction is guided by various general principles, which seem to have motivational or need-like properties (e.g., Breakwell, 1988; Brewer, 1991; Chandler, Lalonde, Sokol, & Hallett, 2003; Hogg, 2007; Sedikides & Strube, 1997). These principles have recently been named identity motives. Identity motives differ from ► basic needs in that they are psychological motivations that predispose people toward *seeing themselves* in certain ways. Unlike physiological needs, identity motives are not necessarily biologically hardwired – they might equally have originated as cultural adaptations to pervasive human concerns about social organization and/or the meaning of existence. Still, identity motives are expected to function similarly to physiological needs, in at least three ways:

1. Motive satisfaction will typically have positive implications, whereas frustration will typically have negative implications, for psychological well-being and the quality of life.
 2. People will typically desire and strive for forms of identity that satisfy these motives, whereas they will typically dislike and try to avoid those that frustrate them.
 3. Temporary or chronic situations that elicit frustration of these motives will typically lead to intensified strivings to satisfy them.
- Identity motives are thought to impact on ► quality of life in various ways. As well as the implications of motive satisfaction or frustration for psychological well-being, the influence of identity motives can be seen through a wide range of *identity maintenance strategies*, which people are thought to adopt in order to satisfy the motives. These identity maintenance strategies can affect the ► psychological well-being and ► physical well-being of the individual and of others (Breakwell, 1988; Vignoles, 2011). For example, people have been shown to take credit for their successes and avoid blame for their failures, buy consumer goods that symbolize their desired identities, participate in risky or unhealthy behaviors that

they expect will lead to social acceptance, choose relationship partners who see them as they see themselves, aggress against those who have evaluated them negatively, treat members of their own groups more favorably than members of other groups, and participate in wars or even acts of genocide (reviewed by Vignoles, 2011).

The literature on identity motives has been rather fragmented. A bewildering variety of motivational constructs has been proposed by theorists focusing on different aspects of identity and working in different applied domains, with little attempt to integrate these ideas or to test them against each other. Recently, Vignoles and colleagues (Vignoles, 2011; Vignoles, Regalia, Manzi, Golledge, & Scabini, 2006) have drawn together theoretical arguments and evidence from diverse perspectives and have proposed the foundations of an integrative model of motivated identity construction (*Motivated Identity Construction Theory*). The theory predicts that people will be motivated to see themselves in a positive light (the self-esteem motive), to perceive their identities as persisting over time despite significant life changes (the *continuity motive*), to see themselves as distinct from others (the *distinctiveness motive*), to see their lives are meaningful (the *meaning motive*), to see themselves as competent and capable of influencing their environments (the *efficacy motive*), and to feel included and accepted by others (the *belonging motive*).

Although some researchers attempt to measure identity motives using explicit, self-report scales (e.g., Lynn & Snyder, 2002), people's self-reports of their own motives cannot necessarily be taken at face value. For example, within an individualistic culture where personal uniqueness is strongly valued, someone might attempt to fit in by saying how much they want to be different (see Jetten, Postmes, & McAuliffe, 2002; Salvatore & Prentice, 2011). Hence, identity motives may be better measured using indirect or implicit indicators – such as the tendency to perceive as more central and self-defining those aspects of identity that provide greater motive satisfaction. Research into individual differences has shown limited or no convergence

between these implicit indicators and explicit self-reports of the same motives (Eriksson, Becker, & Vignoles, 2011; Riketta, 2008). However, studies have begun to demonstrate the value of implicit measures of identity motive strength in predictions of personal (e.g., attitudes to cosmetic surgery), interpersonal (e.g., impression management), and societal (e.g., in-group favoritism) outcomes (see Vignoles, 2011; Vignoles & Moncaster, 2007).

Nomothetic research suggests that all six motives are typically involved in identity construction but that different combinations of motives influence different identity processes: Motives for continuity, distinctiveness, meaning, and self-esteem appear to have the greatest influence on identity definition processes, whereas motives for belonging, efficacy, and self-esteem appear to have the greatest influence on people's behavioral enactment of their identities (Vignoles et al., 2006). Identity motives also appear to be represented in people's desired and feared possible future identities: People desire especially those of their possible future identities that they expect to satisfy identity motives for self-esteem, efficacy, continuity, and meaning, and they fear especially those that they expect to frustrate these motives (Vignoles, Manzi, Regalia, Jemmolo, & Scabini, 2008).

Studies have linked the satisfaction of individual motives with various dimensions of well-being and positive functioning: Self-esteem appears to have a long-term causal influence on psychological well-being and psychosocial adaptation (Orth, Robins, & Roberts, 2008; Trzesniewski et al., 2006). Continuity appears to have a protective effect against feelings of dissociation and even suicide (reviewed by Chandler et al., 2003). When distinctiveness is undermined, people report more ► negative emotions, and adolescents in highly "enmeshed" families – where differentiation between family members is impeded – are especially prone to a variety of psychological and social problems (reviewed by Vignoles, 2009). The perceived presence of meaning in one's life is associated with various indices of psychological well-being (reviewed by Steger, 2009).

Feelings of efficacy and belonging are also predictors of psychological well-being, as well as reduced psychological and somatic symptoms (e.g., Hagerty, Williams, Coyne, & Early, 1996; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Resnick, Harris, & Blum, 1991). However, satisfaction of different motives may be positively correlated, and these studies do not test whether satisfaction of each motive makes a unique contribution to well-being. One study has tested whether people come to be happier with those aspects of their identities that satisfy each of the identity motives. Modeling effects of the six motives together, feelings of self-esteem, continuity, efficacy, and meaning showed unique effects on identity-related affect, and feelings of belonging showed an indirect effect mediated by self-esteem (Vignoles et al., 2006). However, a test of the unique effects of satisfying each of the six identity motives on individual differences in well-being remains to be conducted.

Also in need of future development is a more fine-grained and empirically based understanding of the involvement of specific identity motives in particular identity maintenance strategies. This is likely to be an extremely complex issue. As an example, in order to understand the role of identity motives in ► prejudice and discrimination, it seems likely that different motives may be involved depending on the intergroup context: In the case of competitive relations between groups of a similar nature (such as different nationalities or different sports teams), motives for self-esteem and distinctiveness may be most relevant (after Tajfel & Turner, 1979), whereas in the case of discrimination against marginal, different, or newly arrived group members (such as immigrant minorities), the motive for continuity may be more important (Jetten & Wohl, 2012). However, in the absence of research systematically testing the role of multiple identity motives across different identity maintenance strategies, these suggestions remain speculative.

Considerable debate surrounds the universality or cultural relativity of identity motives.

Motives for self-esteem and distinctiveness especially have been portrayed by some researchers as potentially specific to modern Western, individualist cultures (e.g., Heine, Lehman, Markus, & Kitayama, 1999; Triandis, 1995) but by others as universal human motives or needs (e.g., Sedikides, Skowronski, & Gaertner, 2004; Vignoles, 2009). Recent cross-cultural research is consistent with the view that these motives exist at a generic level in all cultures but that different societies evolve different ways of satisfying each motive, leading to considerable cross-cultural variation in the observable expressions of identity and in the personal and social outcomes of identity processes (Becker et al., 2012; Cai et al., 2011; Sedikides, Gaertner, & Vevea, 2005). More research is needed to examine cultural differences in how people satisfy their identity motives.

Cross-References

- Basic Needs
- Negative Emotions
- Physical Well-Being
- Psychological Well-Being
- Prejudice
- Quality of Life

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Identity Needs

► Identity Motives

Identity Principles

► Identity Motives

Identity Theory

- Gender Theory

Identity, Social

- Community Values
- Sense of Belonging

Ideology

- Dominant Social Paradigm

Ideology and Happiness in the USA

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Synonyms

Political affiliation and life satisfaction in the USA

Definition

What, if any, impact does an individual American's political ideology have on that person's overall ► happiness?

Description

Amidst the burgeoning social science research on the causes and consequences of happiness,

one finding has grabbed the attention of commentators: according to some studies, American political conservatives are happier than political liberals.

Perhaps not surprisingly, some conservative pundits have embraced these results. For example, syndicated columnist George Will (2006) explained them by arguing that "liberalism is a complicated and exacting, not to say grim and scolding, creed. And not one conducive to happiness."

But what lies behind such findings? Why might we expect (or not expect) ideology to influence happiness? How robust are findings of an overall conservative happiness advantage? Might ideology influence happiness in ways other than affecting overall levels of life satisfaction? And to the extent that ideology influences happiness, what are the precise mechanisms at work that explain this relationship? This entry will address such questions.

Findings Regarding Happiness and Ideology

As reported by the PEW Research Center (2006, pp. 13–16) for 2004, based upon data from the US-based General Social Survey (GSS), respectively, 47 % and 45 % of conservative Republicans and moderate/Liberal Republicans report that they are very happy. By contrast, respectively, 31 % and 28 % of conservative/moderate Democrats and Liberal Democrats offer such an assessment. And an examination of GSS data reveals that this happiness discrepancy has held since the early 1970s and regardless of income. Furthermore, Napier and Jost (2008) confirm this relationship using regression analyses that control for other individual factors expected to influence self-reported happiness and a different survey from the US (2000 American National Election Study) and the World Values Survey from nine other countries. Reflecting on these results, Schlenker, Chambers, and Le (2012, p. 127) state that the "ideology-happiness relationship is reliable, small to moderate in size, and potentially quite meaningful given its implications for understanding political ideologies and behavior."

The Measurement of Happiness

The findings described above are the results of measuring a person's happiness based on a survey question like that used by the General Social Survey:

Taken all together, how would you say things are these days – would you say that you are happy, pretty happy, or not too happy?

Clear indications exist that such a measurement is noisy. However, a number of studies (Kahneman & Krueger, 2006; Di Tella & MacCulloch, 2006; Konow & Earley, 2008) have demonstrated the validity of subjective happiness measures by considering the pattern of their correlations with a variety of more objective physiological, medical, and societal criteria. Positive correlates of self-reported happiness measured through a survey question include the following: (1) heart rate measures as responses to ► **stress**, (2) left prefrontal cortex activity (which is associated with the processing of ► **pleasure**), (3) reports on one's happiness made by friends, and (4) length and frequency of Duchenne or “unfakeable smiles.” Negative correlates with self-expressed happiness include ► **unemployment**, divorce, and suicide rates.

The Nature of Political Ideology in the United States

Before considering the question of how ideology influences happiness, we need to consider briefly the nature of political ideology in the American context. Political scientists and others have devoted an enormous amount of attention to this topic, and controversy has existed about definitions, measurement, dimensionality, implications of empirical findings, and other matters. Nevertheless, a few key points emerge from the literature. For one, there appears to be consensus (see Jost, Federico, & Napier, 2009) that ideology can be defined, as it is in the classic American public opinion text by Erikson, Luttbeg, and Tedin (1988, p. 74), as a “set of beliefs about the proper order of society and how it can be achieved.”

Second, there has been some degree of consensus that the political ideology of the American

mass public can meaningfully be described in terms of a single left-right or liberal-conservative dimension (see Jost et al., 2009). In such a characterization, the left end of the spectrum supports ► **social change** and a reduction of inequality, while the right end opposes such goals. Some researchers offer more detailed descriptions of the differences between liberals and conservatives. For example, Schlenker et al. (2012) see liberals as placing a high value on equality, tolerance, pluralism in such matters as morals and religion, and government serving ► **social justice**. By contrast, they see conservatives as sharing the values of individual freedom, individual responsibility, limited government, economic opportunity, strong national defense, and belief in a transcendent moral order.

Little controversy exists about the idea that a large number of Americans do not think in ideological terms, as highlighted in a widely cited 1964 study by Converse and much subsequent work. Yet, a great many people can and do place themselves along a liberal-conservative continuum, and such placement is a strong predictor of ► **voting behavior**, attitudes on specific issues, etc. For example, ideological identification strongly influenced voting in the 2008 presidential election, even controlling for political party identification (which is correlated with but not identical to ideology), judgments about the state of the economy, and other factors (Jacoby, 2010). There remains controversy about whether people who fail to place themselves on such a scale are really centrists or have a more complicated set of views not captured in a single dimension (Trier & Hillygus, 2009).

Third, there is much consensus that the ideological positions of American political leaders (e.g., members of congress, state legislators) have become increasingly polarized in recent decades. Some scholars have argued that average Americans have followed their leaders in becoming more ideologically polarized, while others have maintained that it is political leaders, not members of the mass public, who have become more extreme in their ideological views (see, e.g., Trier & Hillygus, 2009). But there is little doubt that “liberal positions” and

“conservative positions” on issues have become more well defined.

Fourth, there is increasing agreement that ideological positions in part reflect underlying personality traits, though the precise nature of such relationships remains a subject of much study (e.g., Gerber, Huber, Doherty, & Dowling, 2009). We will return to this topic in more depth when we consider empirical findings about the relationship between ideology and happiness.

Why Might Conservatives Be Happier than Liberals?

More recent academic research has taken the finding of an ideological gap as a starting point and attempted to determine why it exists. Varying explanations have emerged, including the following:

1. Personality Differences. One possibility is that underlying personality characteristics common to liberals and to conservatives might explain the observed divergence in conservatives’ greater self-reported happiness. Two theories exist. One is that conservatives are generally more fearful, have lower ► [self-esteem](#), and rationalize away the inequities of society such that they do not reduce their personal happiness. A second is that conservatives are more likely to exhibit the traits of personal agency, positive outlook, transcendental moral beliefs, and beliefs in fairness. Based on four separate studies of University of Florida students, Schlenker, Chambers, and Le (2011) found that self-expressed political conservatives better match the second set of personality traits listed. They conclude that the ideological happiness gap between conservatives and liberals is explained in part by their exhibiting attitudinal measures associated with positive adjustment and mental health.
2. System Justification Theory. Napier and Jost (2008) offer an alternative explanation of conservatives’ greater happiness, based on the study of survey data in the United States and other countries. They argue that conservatives’ belief system makes them more

accepting of political system characteristics that trouble liberals. In particular, as inequality increased over time as measured by the Gini index, happiness tended to drop for all respondents, but much more sharply for self-described liberals. In short, their research (p. 571) suggests that “inequality takes a greater psychological toll on liberals than on conservatives.” Related to the previous explanation, political conservatives are more likely to possess beliefs that allow them to justify these greater inequities as fair because they arise from personal choices, and not as a consequence of the political/economic system in which people live.

More generally, recent political science work suggests that there is promise in exploring the connection between personality traits and political ideology. For example, much research has suggested that conservatism is associated with the commonly identified major personality trait of conscientiousness. By contrast, liberalism is associated with openness (see Gerber et al., 2009). There would appear to be promise in pursuing how such traits in turn connect to happiness.

Might There Be a More Complex Relationship Among Liberalism, Conservatism, and Happiness?

At least one study suggests an affirmative answer to the above question. A recent study from Canada (Choma, Busseri, & Sadava, 2009) indicated it may be an oversimplification to focus only on the differences between liberals and conservatives. This study found that both liberalism and conservatism were associated with greater happiness relative to having no political ideology. They attribute this to the likelihood that the holding of a strongly held ideological belief system generates greater life satisfaction by drawing upon something to explain the world lived in. Their regression analysis shows that political liberalism uniquely predicted a frequent positive effect and political conservatism predicted an infrequent negative effect.

Why Might We Expect (or Not Expect) Ideology in General to Influence Happiness? Based on broad, multifactor studies of happiness, there are two major reasons for expecting that ideology might influence happiness. First, previous empirical research has shown that political and public policy factors can significantly influence individual happiness, at least when comparing across countries (for a summary of such findings, see Wassmer, Lascher & Kroll, 2009). Second, some prior research has found that people filter any perceived connection between policy choices and happiness through their ideological views. For instance, using the Eurobarometer survey data from over 250,000 residents of 10 countries in western Europe between 1975 and 1992, Di Tella and MacCulloch (2005) find that the expressed happiness of liberals falls more with a rise in unemployment than inflation, while politically right-wing individual happiness is reported with a greater reduction in happiness due to inflation over unemployment. Furthermore, Wassmer, Lascher and Kroll (2009), in an examination of subnational fiscal activity influences on personal happiness, find that only the happiness of political liberals rises with an increase in public safety expenditure, only the happiness of political moderates rises with an increase in user fees to fund public services, and only the happiness of political conservatives increases through the use of property taxes. Further exploration of why people filter their happiness derived from government activity and policies through an ideology filter is needed.

Yet there is also some reason to anticipate that differences in people's attitudes about the proper functioning of society might not have a significant effect on happiness. Most notably, much literature underscores the importance of factors relating to individuals' personal circumstances rather than their broader views. For example, summarizing much prior work, Layard (2005) identifies "the big seven factors" that have been shown to influence variance in individual happiness. Fully five of these factors (**► family relationships**, family financial situation, being employed, quality of community and

friendships, and **► health**) relate to such individual circumstances. And empirical research has shown that these factors swamp in magnitude the influence of political ideology on life satisfaction.

Cross-References

- Happiness and social Capital
- Happiness Cross-Cultural Perspectives
- Happiness Measures
- Life Satisfaction
- Political Activities
- Political Consciousness
- Political Empowerment
- Political Trust

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Ideology and Quality of Life

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Synonyms

Collective conviction; Political belief; Political ideas

Definition

Ideology is a set of collectively held ideas about society, usually promoted in order to justify a certain type of political action. Ideologies have an explanatory function: they provide explanations for the facts and problems of the social life, so enabling individuals and groups to orientate themselves in society. They also have an evaluative function. Although most modern ideologies are trying to seem purely factual and neutral, they also identify the “goods” and the “bads” of the social life. Finally, ideologies

provide guidelines for action: in order to improve the social conditions, an individual has to act on his ideological convictions and values. Therefore, most ideologies include also at least rudimentary elements of political programs.

Description

Until the early twentieth century, the term “ideology” was used mostly in pejorative sense. Ideology meant false, biased, and primitivized view of the social world, opposed to objectivity and neutrality of science. The word itself was first used by the French philosopher Destutt de Tracy in 1796 (Head, 1985), who wanted to create a general theory of ideas and was later derided by Napoleon I. The most influential usage of the term, however, was developed later by K. Marx and F. Engels, who made use of it in their social theory. According to Marx and Engels, ideology (including religion, philosophy, arts, and politics) belongs to the superstructure of society (Marx & Engels, 1998). This superstructure is dependent on its material basis, i.e., the mode of production and consumption in the society. Ostensible autonomy of the ideological superstructure is illusory. In reality, the ideology only mirrors the material praxis of society and power relations arising from it. In most cases the ruling ideology of society is controlled by the ruling class; it is used to justify existing inequalities and to make them look “natural” and “inevitable.” Ideology is a socially produced illusion, a “false consciousness,” which bans people from seeing their real conditions of existence. Although this conception has been criticized extensively, it still dominates a great deal of social scientific discourse, especially, the discourse sympathetic to the left (Althusser, 2008; Eagleton, 1991; Žižek, 2009).

Nevertheless, there have been several significant attempts to emancipate the concept of ideology from the pejorative meaning and to make it useful for social analysis. The sociologist of knowledge Karl Mannheim has used it in his work “Ideology and Utopia” (Mannheim, 1936). Ideology, a form of knowledge directed against

social change, is opposed to utopia, open and emancipatory form of knowledge. Later on, in the framework of the so-called cultural turn, Clifford Geertz developed a conception of ideology as a symbolic phenomenon, a cultural system, which allows people to orientate themselves in a complex social world (Geertz, 1973). In his conception ideology is just one of symbolic systems of society, not better or worse than religion, science, or arts. For example, ideology as the “false consciousness” cannot be opposed to science as the “true and objective knowledge,” because no cultural system can represent the one and only truth. Geertz and others have tried to make the concept of ideology sound less pejorative and biased. However, their success has been rather limited, and the concept still does not belong to the mainstream vocabulary of social science. For example, in political science there have been attempts to find more neutral substitutes for the term “ideology”, e.g., belief systems (Sartori, 1969).

An important contribution to the discussion on ideology has been made by the so-called tradition of the ideology critique. By analyzing the main aspects of the “ideological thinking” in general, these conceptions try to understand the effects of the twentieth-century totalitarianism. In this tradition, Sir Karl Popper has developed his theory about the holistic and piecemeal approaches to social engineering (Popper, 1971). The former presupposes an attempt to press the society into pre-given ideological blueprint and the latter, gradual improvements and learning from one’s own mistakes. Some of the critiques of ideology also try to uncover the ideological nature of Western consumer societies. The most important here is the Critical Theory of the Frankfurt school. In its view the nature of ideology has changed significantly; it does not rely anymore on abstract doctrines about the human nature, freedom and equality. Ideology works through the popular culture, sports, and entertainment. In this form, ideology provides people with certain conceptions of society and themselves, working behind their backs and manipulating with their desires and

inclinations (Adorno & Horkheimer, 1997). Moreover, the very belief in unstoppable progress of science and technology can be treated as another form of ideology in modern industrial democracies (Habermas, 1970).

However, not everyone agrees with the presence of ideologies in the contemporary world. The era of ideologies might have ended, since the big ideological blueprints of nineteenth and early twentieth century does not have much appeal today. The concept of the “end of ideology” was developed by Daniel Bell already in 1960s (Bell, 1962). There is a broad consensus on the main issues of the social life, e.g., social welfare programs, free yet regulated market, and individual rights. Hence, politicians are dealing ever more with technocratic policy questions, rather than with radical ideological alternatives. More recently a similar conception was developed by Francis Fukuyama (Fukuyama, 1992). He defends the thesis that the end of the Cold War actually marks the end of the ideological evolution of the humankind. After this “end of history,” no ideological alternatives to liberal democracy are left; even religious fundamentalisms and nationalisms cannot compete with the appeal of liberal, consumerist model of democracy.

The end of ideology as a form of general social historicism does not mean the end of ideological thinking in general. Socially influential concepts and ideas about society as well as about the desirable form of social action of individuals and groups will remain among the factors shaping the social life in various forms. In economic terms, the division between the left and the right still plays a role in democratic politics. Also various nationalisms and religious fundamentalisms will remain at the center of political life. The notion of value change, developed by Ronald Inglehart, demonstrates the dynamics of how different ideologies find their support in particular societies (Inglehart, 1997). Stages of economic and social development find their expression in values of the people. They are either materialist, oriented towards work, material gain, and authority, or

post-materialist, oriented towards self-expression and tolerance. Ideological development keeps pace with these changing values and attitudes of societies.

Cross-References

- Democracy
- Elections
- Government
- Pluralism
- Political Activities
- Political Consciousness

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Idiocentrism-Individual Focused and Allocentrism-Other Focused Self-Construal

- Independent/Interdependent Self

IDUQOL

- Drug User Quality of Life (DUQOL)/Injection Drug User Quality of Life (IDUQOL) Scale

IEA CIVED

- International Association for the Evaluation of Educational Achievement (IEA): Civic Education Study of 1999

IEA Civic Education Study

- International Association for the Evaluation of Educational Achievement (IEA): Civic Education Study of 1999

IEWB

- Index of Economic Well-Being

Illiteracy Tests

- International Literacy Assessments

Illiteracy, an Overview

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Synonyms

[Nonliterate](#)

Definition

The term illiteracy is widely used as a synonym for functional illiteracy or the uneducated status of individuals or groups. The term is generally considered to speak about people who are either uneducated, unable to read and write, or who can read and write, but are considered to be below the level of ability that is functional within any particular society. The term generally refers to a condition of personhood that is defined both in terms of its popular appeal to indicate or invoke a form of social pathology or to place an individual or group in terms of social rank or status.

Description

Illiteracy and Stigma

Street (1995) argues that the term illiteracy has a history of being used as a form of ► [prejudice](#) and stigma. To evoke illiteracy as a form of social pathology (metaphors of disease or epidemic that must be eradicated) can be viewed as rhetorical strategy, for example, to shock people into action, fearing its *terrible consequences* (Street, 1995). As a rhetorical device, the term illiteracy is used for multiple social purposes and contrasting political objectives. These include social actors who describe illiteracy to attempt to gain support and legitimacy for forms of social and educational intervention – which may include intervention in one's own society or the society of other people. The term has been used to deny people their entitlements or voice as citizens and to explain or attribute unfavorable socioeconomic conditions

such as ► [poverty](#), crime, or ill-health. In doing so it may detract public attention from alternative explanations for those social ills. Such associations are often based on spurious notions of causality. It is the complex and Janus-faced nature of the term that makes illiteracy both a generative and problematic social concept. As a result, many academic researchers and policy institutions tend to use the term with caution or reject it entirely.

Apart from the problems of stigma and prejudice associated with the term, there are other problems. Statisticians have long been aware that dichotomous measures of ► [literacy](#)/illiteracy are difficult to interpret. Literacy statistics based on a literate/illiterate dichotomy are methodologically opaque, since they do not normally provide enough information for researchers to know *why* individuals consider themselves to be literate or illiterate. In practice the dichotomy masks variation of abilities and practices that make comparison difficult and introduce the potential for measurement error. Literacy surveys attempt to provide more detailed information about the distribution of literacy abilities within populations. A second problem with the dichotomy is that in many societies, widespread access to primary schooling means that relatively few people are entirely nonliterate. The rejection of the term illiteracy therefore reflects changing societal expectations about *what counts* and *how much* literacy is sufficient or functional for everyday life. Policy attention has moved on in many countries from concerns about *illiteracy* to concerns about the levels of functional literacy ability and how that might impact on socioeconomic opportunity and disadvantage.

There is a strong case therefore to view the rejection of the term *illiterate* as both socially and methodologically progressive – in that it counteracts stigma and prejudice and invites a more detailed and nuanced understanding of the distribution of literacy abilities. The ability to determine how far above or below the threshold of literacy individuals are has the potential for much more accurate analysis of the severity of literacy inequalities. There are however some reasons for caution. The first is that the rejection of the term *illiteracy* has been driven by Western

societies that have achieved almost universal literacy. In those contexts, the term illiteracy (or category of nonliterate) has little policy relevance.

The lived experience of illiteracy can be described in terms of the socioeconomic and psychological impacts of individuals or groups who cannot manage the kinds of everyday reading and writing that social ► norms and institutions expect from citizens and who are unable to benefit from the multiple social uses of literacy. That experience can be contrasted with the experience of orality, since the orality is a feature of institutional and cultural norms in which non-literacy is accepted or valued in the communicative norms of a society, whereas illiteracy is characterized as the opposite condition – where social and institutional norms impose literacy expectations and practices and where people who are unable to participate effectively in those practices are clearly disadvantaged (see Sen, 1999).

Proximate and Isolated Illiteracy

One criticism of this line of thinking is that many illiterate people are able to access and engage with literacy with the help of others in their family or networks of friends or colleagues. They are not the isolated and helpless individuals that the rhetoric of illiteracy would suggest (see Fingret, 1983; Kalman, 1999; Kell, 1996; Malan, 1996). Ethnographic studies provide extensive evidence of literacy mediation. In that sense, schooling systems often promote an unrealistic notion of the isolated individual. That insight into the potential of literacy to be shared is captured in distinction between *proximate* and *isolated* illiteracy developed by Basu and Foster (1998). Their measure of effective literacy estimates the extent to which nonliterate people are able to share some of the benefits of literacy as *positive externalities* by virtue of their proximity to literate household members (see also Basu, Narayan, & Ravallion, 2001; Gibson, 2001). *Proximate illiterates* are nonliterate individuals who live with other literate household members, whereas *isolated illiterates* do not. With the term *effective literacy*, the measure does not assume that proximate illiteracy is equivalent to literacy.

Proximate illiterate people remain disadvantaged compared to their literate family and peers. Wider aspects of proximity can be considered, such as extended networks of friendship and kin that recognize the physical and social dimensions of literacy sharing (Basu & Lee, 2009; Maddox, 2007).

The idea that nonliterate people may share and receive benefits of literacy from other literate people has an intrinsic appeal. However, the sharp distinction between literate and illiterate is perhaps a feature of practical convenience (i.e., the availability of dichotomous statistics from census and household surveys) rather than theoretical principle. Basu and Foster (1998) recognize that their use of the dichotomy is an oversimplification of a more complex distribution of abilities. It seems likely that the quality of literacy mediation is influenced by the extent of people's literacy abilities of both the person giving and the person receiving literacy mediation. Nevertheless, the measure highlights the plight of individuals and families who are *isolated* and who are exposed to the greatest disadvantages of illiteracy.

The Politics of Illiteracy

There is arguably a geopolitical and social justice dimension to the rejection of illiteracy as a term since it may obscure disparities of educational opportunity that exist within and between countries (Nussbaum, 2006). Many countries have large groups of the population who have either had no access to schooling or who have had partial schooling or schooling of very low quality. In those contexts, the term *illiteracy* arguably retains policy significance as it draws attention to situations of extreme disadvantage.

In psychometric literacy surveys based on levels of ability literacy inequalities might get hidden within a category of *level 1, low literacy abilities* – when they might actually be *level 0, no literacy abilities*. A second concern is that the rejection of illiteracy in surveys has been accompanied with the rise of highly technical assessment procedures that are often too complex to enable the lay person to understand the statistics and to appreciate the political character or

literacy measurement regimes (Darville, 1999, Hamilton, 2001). Individual respondents or civil society groups no longer have the ability to decide what it means to be literate or functionally literate (how much literacy or what kind). Those decisions are increasingly being made by technical experts in the world's elite statistical institutions. This creates challenges in terms of responsibilities for transparency of data and the scope for informed public debate.

Conclusion

The term illiteracy is widely associated with forms of prejudice, reference to low social status and notions of social pathology. The term acts as a rhetorical resource as a category of person as a has limited value in surveys of literacy ability. The rejection of literate/illiterate dichotomies in literacy surveys must largely be viewed as a progressive act. However, it is clear that the stigma and sense of social crisis associated with literacy deficit will appear in new forms and continue to be used to legitimate political agendas and social interventions. The development of more nuanced measures of literacy ability creates the opportunity for stronger analysis of the distribution of literacy abilities within populations. It brings with it new challenges of control and transparency, as political agendas are built into literacy measurement regimes.

Cross-References

- [Literacy](#)
- [Literate Environment](#)

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Immigrant Adjustment of Finns in Sweden

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Definition

► **Integration** difficulties of immigrants can manifest not only via poor labor market position but also through reversible migration and poor health. Failures in long-term adjustment may consequently be proxied by immigrants' nonemployment rates, likelihood of return migration, and death risks. Such an approach requires a suitable comparison group other than natives. In the case of Finnish immigrants in Sweden, one can relate the outcomes of Finnish-speaking immigrants to those of Swedish-speaking immigrants from ► [Finland](#). People in the latter group have their mother tongue in common with native Swedes and a comparable labor market situation.

Description

In the literature on immigrants' integration, few attempts have been made to simultaneously observe nonemployment, return migration, and mortality. This entry summarizes the findings of a paper which has taken such an approach (Saarela & Finnäs, 2007). By observing Finnish immigrants in Sweden, the aim was to analyze how sociodemographic characteristics interrelate with these events and illustrate that they seem to work as indicators of adjustment difficulties. The focus was on long-term integration, since there appear to be problems even among immigrants who have stayed in Sweden for many years. In 2001, for instance, the employment rate of male Finns who had been living in Sweden for over 20 years was more than ten percentage units lower than that of native Swedes (Saarela & Rooth, 2006).

In most analyses concerned with integration, immigrants are compared with the native

population of a country. Since the intention here was to analyze also return migration and mortality, it was necessary to have some other comparison group. The authors therefore utilized the fact that about one fifth of the Finnish immigrant population in Sweden has Swedish as their mother tongue (Rooth & Saarela, 2006). Considering that these Swedish-speaking Finns have their mother tongue in common with native Swedes, it is natural to expect them to assimilate more easily into society in Sweden than the Finnish-speaking Finns. In correspondence, they have substantially higher employment and income levels than the Finnish-speaking immigrants, and are basically at the same levels as native Swedes. In 2001, the employment rate of Swedish-speaking men aged 25–50 years was 84.9 %, as compared with 64.4 % for Finnish-speaking men. The employment rate of native Swedes was 87.6 % (Rooth & Saarela, 2007).

Migration to Sweden has also been much more extensive among the Swedish-speaking Finns, whereas their migration within Finland is lower (Finnäs, 1986; Saarela & Finnäs, 2005a, 2011). Swedish speakers who migrate abroad also have lower rates of return migration than Finnish speakers (Finnäs, 2003; Saarela & Finnäs, 2011). This suggests that Swedish speakers, to a greater extent than Finnish speakers, regard Sweden as part of their own labor market and that their migration to Sweden might be considered as internal migration.

Finnish speakers, and specifically Finnish-speaking men, have higher death risks than Swedish speakers in Finland (Saarela & Finnäs, 2006, 2009). It therefore seems natural to expect that Finnish-speaking Finns have higher death risks than Swedish-speaking Finns also in Sweden, particularly since they appear to have greater problems in adjusting to Swedish society.

Since mother tongue is not registered in population registers in Sweden, it has not until recently been possible to distinguish Finnish-speaking and Swedish-speaking immigrants. The approach requires that data on the immigrants are linked to information about the same persons in Finland before they migrated and/or after potential return migration.

The basis for the analysis was a data set that consisted of all persons who lived in Sweden at the end of 1990, who were born between 1926 and 1974 and migrated from Finland after 1970. Using information about birth date, sex, municipality of residence, and year of immigration, these individuals were linked to the Finnish longitudinal population census file, with data from 1970, 1975, 1980, 1985, 1990, 1995, and 2000. Identification was successful in 85.2 % of the cases. Failures in identification were considered to be random as they occurred mainly because individuals with identical characteristics could not be separated. Thus for all individuals with successful matching, there was information from the Finnish censuses prior to the emigration date, and for return migrants also from the subsequent one(s).

The individuals were further linked to the Swedish population register from 2001. For persons still residing in Sweden at the end of 2001, employment status was available directly from the register. A person was considered to be employed if he or she worked at least 1 h per week in November 2001. Return migration and death could not be determined with the same precision, because the events were not observed explicitly. In order to separate return migrants from people who died, the decision rule was that persons who were found in Finland in 2000, but not in Sweden in 2001, were categorized as return migrants. Those who could not be found in either register were considered dead. This procedure resulted in a slight overestimation of the number of deaths, because persons who return migrated during 2001, and those who moved to a third country, become misclassified. The practical implications of these deficiencies should be considered small, however.

Variables from the Swedish register in 1990 were age; sex; educational length; marital status, whether there are 0–15-year-old children in the household; employment status; the most recent year of immigration; and county of residence. A person was classified as employed if he or she had worked at least 1 h per week in October 1990.

To study people in prime working ages, persons analyzed were aged 25–50 years in 1990.

Since focus was on long-term adjustment, the data were further restricted to immigrants who had been living in Sweden for at least 5 years prior to observation in 1990. As compared with the official numbers of migrants, it was approximated that about 20 % of all Finns who emigrated to Sweden during the time period 1971–1975 were still living in the country in 1990. For the immigrant cohorts 1976–1980 and 1981–1985, the corresponding proportions were somewhat below 40 %. For people who immigrated 1986–1990, who were excluded from the analysis, it was slightly over 50 %. The rates of return migration during the first years had consequently been very high.

The total number of individuals under study was 32,336, whereof 5,400 were Swedish speakers. The variables used were categorized into those supposed to account for social integration into the Swedish society (previous employment status, time in Sweden, civil status, children) and personal characteristics used as control variables (age, education, county of residence). In case nonemployment, return migration, and death are outcomes that proxy adjustment failures, the association with the variables should be roughly similar across outcomes. As the events studied were mutually exclusive and exhaustive at any given point in time, but not similar in nature, multinomial logistic regression models were estimated.

Since a person's language group is supposed to impact directly on the possibility of integration in Swedish society, Swedish speakers and Finnish speakers do not differ much with regard to how the sociodemographic variables associate with adjustment failures. Variation between language groups are foremost reflected by a level difference in each type of event.

Table 1 gives variable distributions by gender and language group. We can see that over half of the immigrants under study had been living in Sweden between 10 and 14 years, which is a result of the specifically large migration from Finland to Sweden during the second half of the 1970s. Finnish speakers in the data had on average spent longer time in Sweden than Swedish speakers, because the higher rate of more

Immigrant Adjustment of Finns in Sweden, Table 1 Descriptive statistics of the data (%)

	Men		Women	
	Finnish speakers	Swedish speakers	Finnish speakers	Swedish speakers
Employed in 1990				
Yes	76.5	89.2	84.9	90.5
No	23.5	10.8	15.1	9.5
Years in Sweden				
5–9	19.6	24.7	19.8	23.6
10–14	56.5	58.6	52.9	56.8
15–19	24.0	16.6	27.3	19.6
Married				
Yes	36.9	46.4	50.0	52.2
No	63.1	53.6	50.0	47.8
Children <16 years old in the household				
Yes	36.8	41.8	61.3	60.3
No	63.2	58.2	38.7	39.7
Age in years				
25–30	12.8	10.6	17.7	16.0
31–35	25.4	25.8	30.6	30.0
36–40	30.5	31.6	28.4	28.7
41–45	21.5	21.9	17.3	18.0
46–50	9.8	10.1	6.1	7.3
Years of education				
8–9	51.3	35.2	34.0	21.6
10–11	32.0	24.7	29.8	32.4
12	8.5	17.9	11.3	12.4
13–14	3.6	8.2	11.9	16.1
>14	4.5	14.0	13.0	17.5
County of residence				
Stockholm	42.7	58.3	50.6	59.7
Uppsala	3.2	4.8	3.7	5.4
Södermanland	5.8	3.5	4.1	3.1
Östergötland, Jönköping, Kronoberg, Kalmar, Gotland or Blekinge	6.7	3.9	5.3	3.7
Skåne or Halland	2.8	3.0	3.1	3.2
Västra Götaland	18.7	5.2	12.6	5.5
Värmland, Örebro, Västmanland or Dalarna	9.1	9.6	7.4	7.5
Gävleborg, Västernorrland or Jämtland	3.6	5.9	3.2	5.0
Västerbotten or Norrbotten	7.3	5.9	9.9	7.0
Number of individuals	11,267	2,365	15,669	3,035

Source: Saarela & Finnäs (2007)

Years in Sweden is based on the most recent year of immigration

recent immigration of the Swedish speakers outweighs their relatively low return-migration rate.

The proportion of non-married and people living in households without children was notably higher in Finnish-speaking men than in Swedish-speaking men, indicating that they may

be less integrated into Swedish society. For women there was no such variation in the variables distribution. The data also suggested that a substantially higher proportion of female immigrants than male immigrants had married a native Swede or any other person outside her

Immigrant Adjustment of Finns in Sweden, Table 2 Employment, nonemployment, return migration, and mortality in 2001 in the data, by gender and language group

	Men				Women			
	Finnish speakers		Swedish speakers		Finnish speakers		Swedish speakers	
	%	n	%	n	%	n	%	n
Employed	49.5	5,573	71.4	1,688	67.6	10,588	79.0	2,399
Non-employed	28.9	3,259	15.4	364	21.4	3,359	13.5	409
Return-migrated	12.2	1,379	7.3	173	7.4	1,154	4.2	127
Dead	9.4	1,056	5.9	140	3.6	568	3.3	100
Total	100.0	11,267	100.0	2,365	100.0	15,669	100.0	3,035

Source: Saarela & Finnäs (2007)

own immigrant group. There were only about 4,150 married Finnish-speaking men, as compared with almost 7,850 married Finnish-speaking women.

Finnish-speaking immigrants, and specifically men, were substantially poorer educated than the Swedish-speaking immigrants, and their nonemployment levels in 1990 were also much higher. The two groups differed also on geographical distribution. Swedish speakers were to a greater extent than the Finnish speakers living in the county of Stockholm and to a lesser extent in the Gothenburg area (Västra Götaland).

In terms of the outcomes of specific interest, there was substantial variation between the two language groups. Table 2 shows that almost 29 % of the Finnish-speaking men, but only 15.4 % of the Swedish-speaking men, were non-employed in 2001. Over 12 % of the Finnish-speaking men had return migrated by 2001, as compared with 7.3 % of the Swedish-speaking men. For women the corresponding numbers were 21.4 %, 13.5 %, 7.4 %, and 4.2 %, respectively.

Using information for women, it was concluded that death risks in the data were overestimated with at most two percentage units, probably less. About 1.2 % of the women in each language group should have died according to death risks in the same ages in Finland. In the data, the proportion dead was 3.6 % for Finnish-speaking women and 3.3 % for Swedish-speaking women. There is no reason to believe that death was overestimated more for men in the data than for women. Death risks in men, and especially in Finnish-speaking men, consequently appears to much higher in the

immigrant population than in the nonmigrant population. The proportion dead in Finnish-speaking men in the data was 9.4 %, whereas it is 4.1 % according to death risks for Finnish-speaking men in Finland and less than 3 % according to death risk for men in Sweden. For Swedish-speaking men, the proportion dead was 5.9 % in the data, as compared with an expected proportion of approximately 3 % according to conditions in Finland.

The language-group outcome differential turned out to be fairly similar across the three events of interest. Distributional differences in the variables used underlie this variation only to a limited extent. Educational length and previous employment status were the only variables with a significant impact on this concern. Finnish-speaking men had, as compared with Swedish-speaking men, about twice higher odds of being non-employed, return migrated, or dead, when having accounted for all the control variables. For women, the odds ratio was almost two for nonemployment and somewhat lower for return migration and mortality.

To study the association between sociodemographic variables and each outcome, and whether the two language groups differ in this respect, separate regressions for Finnish speakers and Swedish speakers were estimated. The results are summarized in Table 3 for men and in Table 4 for women. The general picture is that the interrelation between each variable and outcome was fairly similar both across outcomes and across language groups. The variation between language groups consequently takes effect foremost via a level difference.

Immigrant Adjustment of Finns in Sweden, Table 3 Odds ratios of nonemployment, return migration, and mortality for Finnish-speaking men and for Swedish-speaking men

		Finnish speakers		Swedish speakers	
		Non-employed	Return-migrated	Non-employed	Return-migrated
Employed in 1990, Yes	1	1	1	1	1
No	6.21 (5.49–7.03)	5.84 (5.02–6.79)	6.10 (5.17–7.18)	7.43 (5.23–10.56)	7.54 (4.94–11.52)
Years in Sweden, 5–9	1	1	1	1	1
10–14	0.80 (0.70–0.92)	0.47 (0.41–0.55)	0.69 (0.58–0.83)	0.60 (0.44–0.81)	0.38 (0.26–0.55)
15–19	0.66 (0.57–0.77)	0.35 (0.28–0.42)	0.48 (0.38–0.60)	0.67 (0.45–0.99)	0.30 (0.17–0.54)
Married, Yes	1	1	1	1	1
No	1.44 (1.28–1.61)	1.05 (0.90–1.22)	1.48 (1.25–1.76)	1.19 (0.89–1.58)	1.04 (0.70–1.55)
Children <16 years old, Yes	1	1	1	1	1
No	1.60 (1.42–1.79)	1.75 (1.49–2.04)	2.12 (1.77–2.56)	1.87 (1.38–2.53)	1.95 (1.28–2.97)
Age in years, 25–30	1	1	1	1	1
31–35	1.19 (1.00–1.40)	1.31 (1.07–1.60)	1.32 (0.99–1.74)	1.49 (0.90–2.49)	0.71 (0.42–1.20)
36–40	1.53 (1.29–1.80)	1.12 (0.90–1.38)	2.27 (1.73–2.97)	2.00 (1.21–3.31)	0.83 (0.48–1.42)
41–45	2.03 (1.70–2.42)	1.51 (1.21–1.88)	3.36 (2.55–4.44)	2.90 (1.73–4.84)	0.98 (0.56–1.74)
46–50	3.56 (2.88–4.40)	1.86 (1.40–2.46)	7.00 (5.16–9.50)	6.30 (3.61–10.99)	1.02 (0.50–2.07)
Years of education, 8–9	1	1	1	1	1
10–11	1.01 (0.91–1.13)	0.78 (0.68–0.91)	0.84 (0.72–0.99)	0.76 (0.56–1.03)	0.51 (0.32–0.83)
12	0.57 (0.47–0.69)	0.70 (0.56–0.88)	0.59 (0.45–0.78)	0.46 (0.32–0.68)	0.86 (0.54–1.36)
13–14	0.47 (0.36–0.63)	0.62 (0.44–0.87)	0.48 (0.31–0.74)	0.37 (0.21–0.64)	0.65 (0.33–1.27)
>14	0.43 (0.33–0.56)	0.72 (0.54–0.97)	0.65 (0.46–0.92)	0.30 (0.18–0.47)	0.94 (0.58–1.53)
R ² : Cox&Snel/Nagelkerke/McFadden	0.211/0.232/0.100			0.194/0.234/0.122	
Number of individuals	11,267			2,365	

Source: Saarela & Finnäs (2007)

Results are from multinomial logistic regression models estimated separately for Finnish speakers and Swedish speakers
 Reference category for the outcome variable is Employed
 95% confidence intervals are within parentheses

Results for the variable Country of residence are not displayed
 All variables except Married for Swedish speakers significantly improve the model fit

Immigrant Adjustment of Finns in Sweden, Table 4 Odds ratios of nonemployment, return migration, and mortality for Finnish-speaking women and for Swedish-speaking women

	Finnish speakers			Swedish speakers		
	Non-employed	Return-migrated	Dead	Non-employed	Return-migrated	Dead
Employed in 1990, Yes						
No	5.75 (5.15–6.41)	4.03 (3.45–4.71)	5.65 (4.64–689)	4.91 (3.66–6.59)	2.51 (1.46–4.34)	3.45 (2.00–5.96)
Years in Sweden, 5–9						
10–14	0.94 (0.83–1.06)	0.57 (049–0.66)	0.81 (0.65–1.02)	1.09 (0.81–1.47)	0.36 (0.24–0.55)	0.51 (0.32–0.83)
15–19	0.86 (0.72–0.94)	0.43 (0.35–0.52)	0.64 (0.49–0.84)	0.99 (0.68–1.44)	0.34 (0.18–0.65)	0.40 (0.20–0.79)
Married, Yes						
No	1.47 (1.34–1.61)	1.54 (1.34–1.76)	1.29 (1.07–1.55)	1.31 (1.03–1.66)	1.91 (1.25–2.92)	0.89 (0.57–1.39)
Children <16 years old, Yes						
No	1.49 (1.36–1.64)	1.74 (1.52–1.99)	2.24 (1.86–2.70)	1.67 (1.31–2.13)	1.79 (1.20–2.68)	2.60 (1.65–4.09)
Age in years, 25–30						
31–35	1.09 (0.95–1.25)	0.99 (0.83–1.18)	1.11 (0.84–4.48)	1.05 (0.73–1.52)	1.14 (0.69–1.88)	0.71 (0.38–1.32)
36–40	1.33 (1.16–1.53)	0.88 (0.73–1.07)	1.33 (0.99–1.77)	1.12 (0.76–1.64)	1.00 (0.57–1.77)	0.81 (0.42–1.55)
41–45	1.85 (1.59–2.15)	0.82 (0.66–1.03)	1.60 (1.17–2.17)	1.39 (0.93–2.08)	0.72 (0.36–1.45)	0.80 (0.39–1.62)
46–50	3.26 (2.68–3.95)	1.29 (0.96–1.74)	2.87 (1.99–4.13)	2.18 (1.36–348)	0.69 (0.26–1.89)	2.10 (1.01–4.36)
Years of education, 8–9						
10–11	0.62 (0.56–0.68)	0.50 (0.42–0.58)	0.66 (0.53–0.82)	0.49 (0.37–0.64)	0.62 (0.38–1.01)	0.59 (0.35–1.00)
12	0.44 (0.37–0.51)	0.38 (0.31–0.48)	0.64 (0.48–0.86)	0.55 (0.38–0.78)	0.84 (0.47–1.50)	0.55 (0.28–1.09)
13–14	0.28 (0.24–0.33)	0.33 (0.26–0.42)	0.50 (0.37–0.68)	0.32 (0.22–0.47)	0.49 (0.26–0.91)	0.30 (0.14–0.64)
>14	0.20 (0.17–0.24)	0.33 (0.27–0.42)	0.62 (0.47–0.82)	0.23 (0.16–0.34)	0.43 (0.23–0.80)	0.50 (0.27–0.94)
R ² : Cox&Snel/Nagelkerke/McFadden	0.184/0.220/0.112			0.128/0.170/0.098		
Number of individuals	15,669			3,035		

Source: Saarela & Finnäs (2007)

Results are from multinomial logistic regression models estimated separately for Finnish speakers and Swedish speakers
Reference category for the outcome variable is Employed
95% confidence intervals are within parentheses

Results for the variable Country of residence are not displayed
All variables except Country of residence for Swedish speakers significantly improve the model fit

The variable with the single most evident association with adjustment failures was previous employment status. Men who were non-employed in 1990 had, in relation to those who were employed, over six times higher odds of being non-employed 11 years later. The interrelation with return migration and mortality was about the same. Women, and specifically Swedish-speaking women, seemed to be less affected by poor labor market experience, as the impact of nonemployment in 1990 on the odds of adjustment failure, and especially on return migration, was lower than for men. This might reflect that they are better socially integrated in the Swedish society.

Also time spent in Sweden seems strongly associated with each event. The odds of return migration was more than 50 % lower for a person who had been living in Sweden for at least 15 years, as compared with one who had lived in the country for 5–9 years. Similarly, labor market opportunities seemed to be better and mortality lower for those having spent at least 10 years in the country.

Marriage was, as expected, negatively associated with both nonemployment and mortality. Married women were less likely to return migrate than non-married ones, whereas the similar pattern could not be observed for men. It is plausible that this reflects a higher tendency of women than of men to integrate into the Swedish society through marriage. Social adjustment in terms of children also reduced nonemployment propensity, as well as return-migration propensity and mortality.

The odds of nonemployment and mortality increased notably with age. For return migration there was no evident pattern. The exception is Finnish-speaking men, whose propensity to return migrate tended to increase with age.

A person's length of education was strongly associated with the likelihood of nonemployment. For a Finnish-speaking man with at least 15 years of education, the odds of being non-employed in 2001 were more than 50 % lower than for one having only basic education. For Swedish-speaking men, and for women, this differential is even larger. The interrelation between education

and return migration, and mortality, respectively, was similar but somewhat less emphasized and uniform. The overall results still reveal that people with lengthier educations had both reduced return-migration propensities and lower mortality rates than those with shorter educations.

The results emphasize the importance of separating subgroups of immigrants when one is interested in integrational success. Within the Finnish immigrant population, it is highly relevant to distinguish Swedish speakers from the Finnish speakers, because the labor market performance of the former lies close to parity with that of native Swedes.

The study revealed that the impact of sociodemographic variables was fairly similar across outcomes. The odds of nonemployment, return migration, and mortality, respectively, all increased notably with poor labor market experience, not being married, not living with children, and age, whereas they decreased with time spent in Sweden and length of education. All three events consequently appear to proxy adjustment failures.

Comparing the two language groups, it was found that there is a clear level difference in each event and that the interrelation with sociodemographic variables was fairly similar across language groups. Swedish-speaking Finns consequently appear to be substantially better integrated in the Swedish society than the Finnish-speaking Finns.

The language-group differential in outcomes appeared to be specifically marked in men. As noted by Hjerm (2005), unequal possibilities to enter the labor market might have severe effects on other areas of social and political citizenship. An evident policy conclusion from this research is therefore that increasing attention should be directed towards the long-term integration of Finnish-speaking male immigrants in Sweden. They have twice the odds of being either non-employed, return migrated, or dead, as compared with Swedish-speaking immigrants from Finland. The data used could not give an empirical explanation to this variation. One should still bear in mind that social disadvantage might accumulate in specific segments of a population

(Saarela & Finnäs, 2005b). Male Finnish immigrants in Sweden have been found heavily overrepresented among homeless people (National Board of Health and Welfare, 2006). It is therefore highly relevant to try understanding the specific mechanisms that bring certain long-term immigrants into socially disadvantaged groups.

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Immigrant Concentration Impact on Air Pollution

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Synonyms

Immigration and the environment; Immigration-environment relationships; Population and environment; Population growth and air pollution

Definition

In response to recent growth in US ► **immigration**, public and academic discourse concerning the effects of immigration on the natural environment has intensified. Within social science research, theoretical perspectives on immigration-environment relationships provide conflicting arguments, suggesting that immigration may either (1) increase local levels of pollution and environmental harms or (2) immigration may have neutral or even protective effects on the environmental conditions of local communities. Although empirical research on immigration and pollution remains relatively scarce, a small body of noteworthy studies has assessed potential relationships. Price and Feldmeyer (2012), Squalli (2009, 2010), and Cramer (1998) do not find any links between immigrant populations and increased local air pollution levels but do find associations between other forms of population growth (domestic migration and natural population growth) and increased air pollution.

Description

The effect of immigration on local communities has received considerable attention in recent decades, largely in response to the dramatic growth in US immigration beginning in the 1980s and 1990s. Debates have intensified in both public and scholarly communities about the impact of immigration on community well-being, including its effects on local ► [crime rates](#), employment opportunities, the economy, and school and ► [healthcare](#) systems. Increasingly, public discourse has also intensified concerning the *environmental impact* of contemporary immigration (see Kraly, 1998; Muradian, 2006; Neumayer, 2006). However, scholarly work assessing the immigration-environment relationship remains somewhat scarce. Notably, researchers have given considerable (but separate) attention to (1) the social consequences of immigration for communities and (2) the social sources of environmental harm; the two topics together have received only modest scholarly consideration. Although empirical research on the topic, thus far, suggests that growing immigrant populations do not contribute to increased local air pollution (Cramer, 1998; Price & Feldmeyer, 2012; Squalli, 2009, 2010), there are competing theoretical reasons to expect that immigration could either contribute to environmental harm or, alternatively, could have either positive or neutral effects on local environmental conditions.

Theoretical arguments that suggest immigration could have a negative impact on local environments stem primarily from ideas about environmental effects of *population pressure*. Thomas Malthus first argued in 1979 that population growth would outpace the capacities of food production. Since then, *neo-Malthusian positions* have emerged to suggest that all forms of population growth, including immigration, place taxing demands on the natural environment (Daily & Ehrlich, 1992). These positions suggest that environmental problems occur because a larger population requires more natural resources (e.g., water, energy, land) and produces more waste (e.g., solid waste, air and water

pollution). Notably, demographic reports indicate that immigration has been a major source of contemporary US population growth – it accounted for approximately one-third of US population growth from 2000 to 2007 (seven million people) (Pew Hispanic Center, 2009) – which may contribute to greater environmental harm and increased strains on local ecosystems according to neo-Malthusian perspectives. Furthermore, some suggest that these patterns of immigration may be more harmful to the environment than other types of population growth (i.e., natural population growth, domestic migration) (Cole & Neumayer, 2004; Daily, Ehrlich, & Ehrlich, 1995; Garling, 1998) because they have occurred so rapidly and have been highly concentrated, making it more difficult for local communities and ecosystems to accommodate these population shifts.

Similarly, other research suggests that immigration could also *indirectly* contribute to environmental harm, even if it does not have a direct or immediate impact on the local environment. For example, immigrant women tend to have higher fertility rates than US-born women, potentially affecting future population growth and pressure on US ecosystems (Garling, 1998; Johnson & Lichten, 2008). In addition, if immigrants begin to develop American lifestyles and the associated higher ► [consumption](#) and waste patterns, their environmental impact could increase over the long term (Hall, Pontius, Coleman, & Ko, 1994; Hunter, 2000). Foreign-born populations may also reinforce and attract sources of low-wage labor in communities, unintentionally supporting industrial sectors such as meat processing or textile industries that are notorious for emitting high levels of air pollution (Ilea, 2009; Martinez, 2002).

In addition, the Chicago school of sociology and *social disorganization perspectives* provide further theoretical links between immigration and environmental harm. These positions suggest that immigration could inhibit community residents' ability to address and control local social problems, such as crime, physical and social disorder, and pollution (Garling, 1998; Shaw & McKay, 1942). According to these perspectives,

immigration may destabilize communities by contributing to population turnover, language and cultural heterogeneity, and increased community levels of ► poverty resulting from growth of immigrant populations with relatively fewer economic resources (see reviews in Feldmeyer, 2009; Martinez, 2002). These social conditions combined with the weaker political capital of some new immigrant groups (Portes & Rumbaut, 2006) may weaken residents' ability to address pollution problems or raise the social and political attention needed to protect the community from social problems and environmental harms. Thus, according to these positions, immigration may disorganize local communities in ways that make them more vulnerable to environmental risks and harms, even if immigrants themselves do not produce higher levels of pollution.

In contrast to the positions described above, there are multiple theoretical arguments suggesting immigration may have little or no impact on the environment, or could even have a pollution-reducing effect. The ► *ecological footprint perspective* suggests that not all population growth has the same environmental impact. Although immigration contributes significantly to local population growth, immigrants typically have a smaller ecological footprint than US-born individuals, who have one of the largest average ecological footprints worldwide (White, 2007). Instead, immigrants tend to have lifestyles that place less stress on the physical environment. Immigrants are more likely than US-born populations to live in smaller houses, car pool, and take public transportation (Bohon, Stamps, & Atiles, 2008), and they are less likely to partake in the extravagant lifestyles of the more affluent (e.g., traveling by airplane/jet, golfing, snow-skiing). In addition, recent immigrants are more likely to be concerned about environmental problems and engage in environmentally friendly behavior than US-born residents (Hunter, 2000; Pfeffer & Stykos, 2002). Thus, the ecological footprint model calls for a more sophisticated look at the relationship between population growth and environmental problems (York, Rosa, & Dietz, 2003).

Similarly, *community resource positions* – including the “Latino paradox” (Sampson & Bean, 2006) and “immigrant revitalization” perspectives (Martinez, 2002) – suggest that rather than disorganizing communities, immigration may actually strengthen community resources and organization and bolster residents' ability to address social problems like pollution and environmental harm. Drawing from research on immigration assimilation and ethnic economies, these positions suggest that immigration reinforces strong kinship bonds and ► *social networks* within neighborhoods, which bolsters ► *social cohesion* and social capital resources in the community (Feldmeyer, 2009, 2010; Martinez, 2002; Portes & Rumbaut, 2006). Furthermore, research indicates that geographic concentration of immigration revitalizes and strengthens protective social institutions (such as the family, church, and labor market) that provide beneficial community resources and support (Light & Gold, 2000; Martinez, 2002; Portes & Rumbaut, 2006). Thus, immigration may not destabilize communities at all, but may instead provide resources and foster greater organization and more effective coordination among residents for addressing environmental harms and other social problems.

Although there is a dearth of empirical research assessing the relationship between immigration and the natural environment, there are four noteworthy studies looking specifically at immigration and air pollution. Cramer (1998) examined the relationship between air quality and population growth in California, an area with high levels of both immigration and air pollution. He found that population growth, in general, is strongly associated with an increase in some types of air pollution (reactive organic gases, oxides of nitrogen, and carbon monoxide), but these effects could not be ascribed specifically to immigration. Squalli (2009, 2010) examined the relationship between immigration and air pollution (specifically oxides of carbon, nitrogen dioxide, particulate matter 10, and sulfur dioxide) across the USA by using statewide data in 2010 and countywide data in 2009. Squalli (2010)

found that US states with larger portions of foreign-born populations actually have lower levels of nitrogen dioxide and sulfur dioxide. Similarly, using a cross-sectional analysis, Squalli (2009) found that counties with larger foreign-born populations have lower sulfur dioxide emissions, yet counties with a larger share of US-born residents have higher levels of nitrogen dioxide and sulfur dioxide emissions. These studies suggest that the arguments against immigration biased on concerns for environmental problems (specifically air pollution) may not be empirically justified.

Price and Feldmeyer (2012) extended these analyses by looking at the relationship between population growth and air pollution in Metropolitan Statistical Areas (MSAs) between 2000 and 2006. They examined the effects of three types of population growth (natural population growth, domestic migration, and immigration) on air pollution levels (carbon monoxide, particulate matter 2.5 and 10, ozone, nitrogen dioxide, sulfur dioxide, and an air pollution index) for 183 MSAs across the USA. They found that immigration does not contribute to increased local air pollution, directly or indirectly, across any of the pollutants measured. Price and Feldmeyer (2012) did find, however, other types of population growth (domestic migration and natural population growth) to be associated with higher levels of air pollution. Specifically, they found a link between domestic migration and higher levels of carbon monoxide, ground-level ozone, and the air pollution index and a link between natural population growth and increased levels of ground-level ozone, nitrogen dioxide, and the air pollution index.

The findings of Price and Feldmeyer (2012), Squalli (2009, 2010), and Cramer (1998) clearly support the *ecological footprint* and *community resource* theoretical perspectives and counter *neo-Malthusian* and *social disorganization* perspectives. That is, immigration as a form of population growth does not appear to have the same (air) pollution-producing effects as other types of population growth (domestic migration and natural population growth).

Cross-References

- Immigrants, Responses to
- Population Growth

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Immigrant Diversity Planning

► Immigrants, Responses to

Immigrant Policies

► Immigrants, Responses to

Immigrants in Israel

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Synonyms

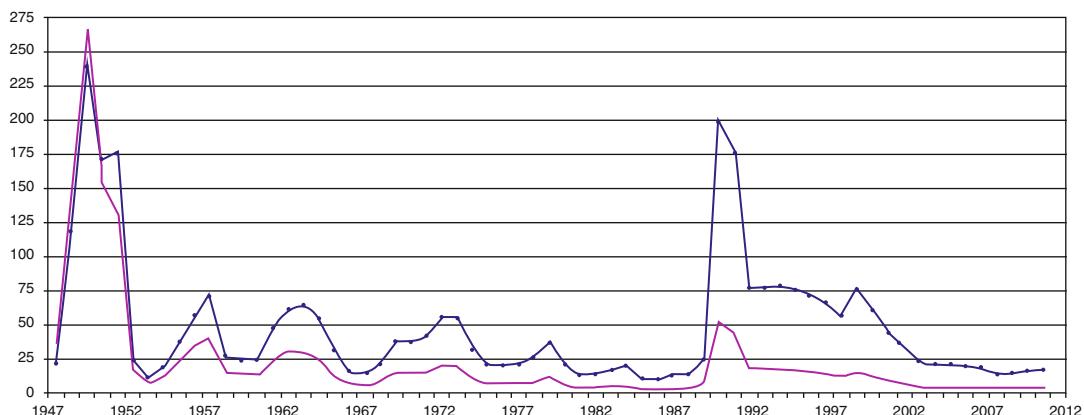
[Survey of health, aging, and retirement in Europe \(SHARE\)](#)

Description

Immigration in Israel

Israel is a multiethnic society inhabited by Jews who immigrated to the country from around the world, by non-Jews (mostly Muslim Arabs who have lived in the region for generations), and in the last two decades by labor migrants and asylum seekers (refugees). Of Israel's 7.8 million citizens, about 80 % are Jews (or of Jewish ancestry) and the remainder are non-Jews (Arabs). In addition, since the early 1990s, Israel has encountered a new group of immigrants, namely, labor migrants (non-Jews and non-Arabs) from various countries, who work mainly in agriculture, construction, and nursing for elderly people. In the last decade, asylum seekers from Africa have entered Israel by crossing the country's southern border. There are approximately 200,000 labor migrants and about 60,000 asylum seekers who are neither permanent residents nor citizens.

The migration of Jews to Israel can be characterized as a returning Diaspora, a unique feature among most migratory movements. For more than 2,000 years, Israel served as the religious-cultural homeland of the Jewish people, although less than 1 % of the Jewish people actually lived in this land in the early nineteenth century, when the Zionist movement was established. Today, 64 years after the establishment of the State of Israel, about 40 % of the world's Jewish population lives in Israel (DellaPergola, 2009). As members of a returning Diaspora, most Jewish immigrants to Israel feel an affinity with the destination society prior to migration and document



Immigrants in Israel, Fig. 1 Number of immigrants (in thousands, *dotted line*) and rates of immigration per 1,000 population, Israel 1947–2012 (Source: Israel Central Bureau of Statistics)

a feeling of homecoming upon arrival. Throughout its short history, the State of Israel has been ideologically committed to the successful integration of Jewish immigrants into its society. This is most evident in the Law of Return, according to which immigrants of Jewish ancestry and their non-Jewish family members have the right to settle in Israel, and are granted Israeli citizenship upon arrival.

The Israeli population, estimated at 805,600 at the date of independence (1948), grew largely due to Jewish immigration. Of the Jewish population in Israel today, about 35 % are immigrants (foreign born). Of the 75 % that is born locally, 34 % are children of first-generation immigrants. Thus, we see that Israeli society is clearly an immigrant society.

Jewish immigration to Israel may be divided into five main periods. The first stage is counted up to the founding of the state, with most immigrants arriving from Eastern and Central Europe (mainly the U.S.S.R., Poland, Romania, and Germany). Many of these migrants were young, and they were motivated largely by ideological aspirations. A smaller group of immigrants arrived from Yemen, driven mostly by religious motives. During the second stage, from 1948 to 1952, masses of Jews immigrated to the new State of Israel immediately following its establishment. People arrived from Europe (mostly Holocaust survivors), and from Asia and North Africa

(mainly Iraq, Iran, Yemen, and Morocco). The latter group migrated for a combination of reasons that included political oppression, economic deprivation, and religious orientation. A third stage of immigration took place from 1953 to 1989, and was characterized by sporadic arrivals of groups from different countries, with widely ranging motivations for coming to Israel. This stage ended abruptly in late 1989 with the collapse of the Soviet Union. The mass arrival of Soviet Jews from 1989 to 1995 most prominently characterizes the fourth period of immigration to Israel, although a smaller number of immigrants arrived from Ethiopia during this period as well. The fifth stage of immigration, beginning in 1996, is marked by a sporadic mix of immigrants from the former Soviet Union, Europe (mainly France), the USA, Argentina, and Ethiopia. The motivations for migration among these most recent arrivals are as varied as their countries of origin (Semyonov & Lewin-Epstein, 2003).

Changes in migration flows to Israel are evident from Fig. 1. The two peaks are the period immediately after statehood (1948–52) and the beginning of the 1990s (1989–95).

Studies on the integration of immigrants (mostly from the three first periods) into Israeli society have underscored the existence of ethnic and socioeconomic gaps within the immigrant population, noting particularly the division between two major sociocultural groupings: the European

and American born (Westerners), and those who have arrived from Africa or Asia (Easterners). These analyses have showed that educational level, occupational status, and salaries were lower among the Easterners than among the Westerners. However, recent studies suggest that more specific categories of ethnicity or origin are required in order to understand the socioeconomic differentials that exist in Israel and in other immigrant societies. In addition, the current mode of thought in Israel suggests the need to address the recent immigrants from the former Soviet Union as a separate group, due to their unprecedented numbers and their uniquely economic and political motivations for migration.

After the collapse of the Soviet Union in 1989, one million immigrants arrived in Israel from the FSU. Today, they account for about 20 % of the total Jewish population. Economic and political uncertainty in the countries of origin led to an economic pattern of migration based on “push” factors. Studies point to the high levels of ► **human capital** that FSU immigrants brought with them to Israel relative to both the Soviet and Israeli populations. Studies of FSU immigrant economic integration in Israel have documented impressive employment levels of immigrants, but partly at the cost of occupational downgrading compared with the occupations they held in the FSU.

Another challenging recent immigrant group is that of Ethiopian immigrants. Since 1980, about 85,000 immigrants from Ethiopia have arrived in Israel. Immigrants from Ethiopia have come from a rural society and nomadic culture with a very low level of human capital; they are black, and hence are a visible minority group. Evidence indicates that the Ethiopians are the least integrated of all Israel’s immigrant groups with regard to education and economic position. However, they came to Israel out of “pull” religious motives, and studies indicate that they have the desire to be integrated into the Israeli society.

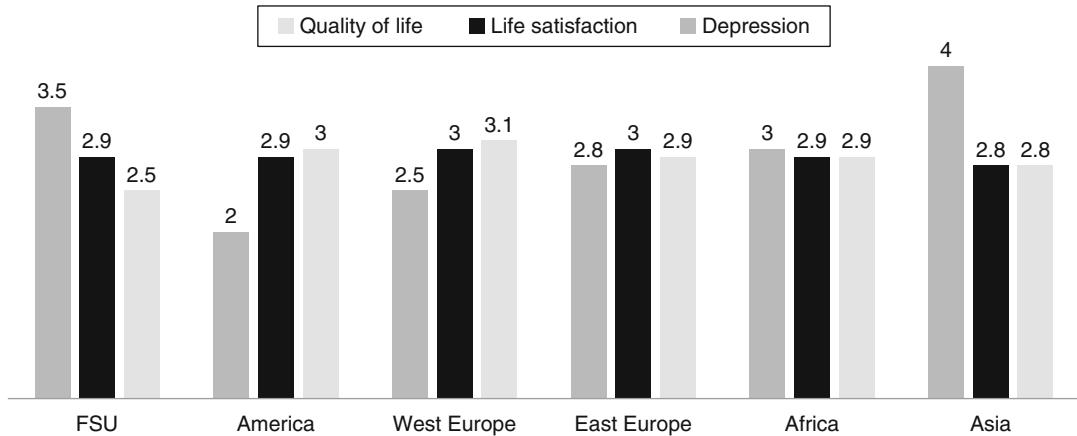
Immigrants’ Quality of Life

General assessments of the ► **quality of life** of Israelis indicate that Israel is among the

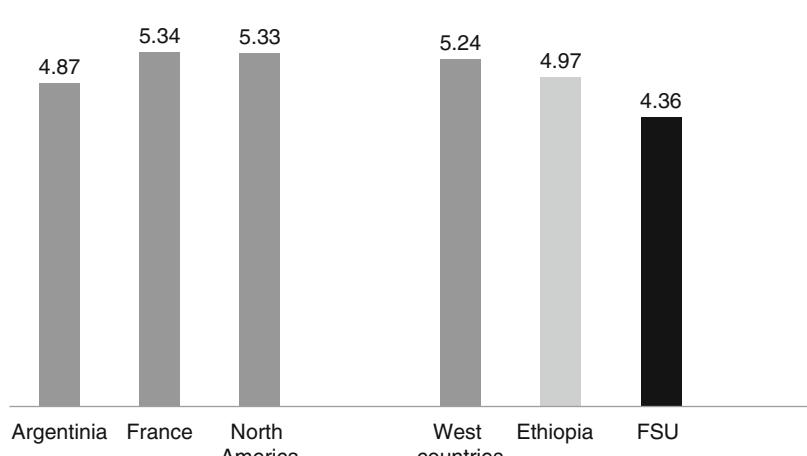
top 40 countries in international comparisons on life quality parameters (e.g., UN Human Development Report 2011). Most studies conducted in Israel differentiate between groups according to the unique demographic composition of Israeli society, and thus provide information on the perceived quality of life and the ► **life satisfaction** of different ethnic groups. Here, we focus on Jewish immigrants in Israel, since Israeli studies in this field relate mainly to immigrants of Jewish ancestry.

In a recent study based on data from the Israeli component of SHARE (Survey of Health, Aging and Retirement in Europe), the ► **subjective well-being** of elderly immigrants (aged 50 and older) was examined according to three components: quality of life, life satisfaction, and depression (Amit & Litwin, 2010). The immigrants were divided into six main origin groups: immigrants arriving from Asia, Africa, East Europe, West Europe, America, and the FSU (arriving after 1989). The results, presented in the figure below, point to differences between the immigrant groups in two subjective well-being components: quality of life and depression. Immigrants from the FSU report a lower level of quality of life and higher level of depression compared to most other immigrant groups (Fig. 2).

The study further revealed that in general, marital status, ► **health** conditions, economic situation, and social capital (social contacts and activities) were all significant predictors of subjective well-being in elderly people, represented by quality of life, life satisfaction, and feeling of depression. However, the only group whose origin was found to be associated with well-being outcomes was the FSU immigrants. For these immigrants, even after controlling for the background variables, a negative association was apparent between origin and perceived quality of life and sense of depression. It is important to emphasize in this respect that the FSU immigrants have been in Israel for less time as compared to the other immigrant groups. These findings may indicate the importance of immigration circumstances in determining the immigrant’s quality of life.



Immigrants in Israel, Fig. 2 Subjective well-being of immigrants aged 50+ (scales 1–4)



Immigrants in Israel, Fig. 3 Life satisfaction (scale 1–6) of immigrants aged 20–65 (Source: Ruppin Index, 2007)

The next figure presents the level of life satisfaction as reported in 2007 from a sample of immigrants aged 20–65, representing the three most recent immigrant groups arriving in Israel since the early 1990s: from the FSU, Ethiopia, and Western countries (from North America, France, and Argentina). The figure shows that among recent arrivals, the FSU immigrants are the least satisfied, while those from Western countries (especially from North America and France) are the most satisfied (Fig. 3). The differences between the groups may be attributed to demographic and socioeconomic factors, as well as cultural factors. Recent Western immigrants arriving from North America and France

typically enjoy a higher standard of living than FSU immigrants, although a large portion of both groups is highly educated and skilled. The Ethiopian immigrants, as specified before, have the lowest living standard of all groups in Israeli society and low levels of academic education. In addition, Western immigrants (from North America and France) and Ethiopian immigrants came to Israel mainly out of religious and Zionist motivation and a significant proportion define themselves as religious or traditional; by contrast, the FSU immigrants came to Israel due to economic and political “push” factors, and most do not define themselves as religious. The importance of religion and religious support for

the individual's subjective well-being has been proven in studies throughout the world, as well as in the Israeli context. Religious belief and religious support have been related to higher levels of life satisfaction and lower levels of emotional distress among religious Jewish people living in Israel (Lazar & Bjorck, 2008).

A recent Israeli study compared FSU immigrants and Western immigrants (aged 20–65) for life satisfaction and its determinants (Amit, 2010). In both groups, immigrants reporting the greatest satisfaction were women, religious, with a high standard of living, nonacademic education, and a strong Israeli identity. Standard of living proved the most significant predictor, a finding that highlights the importance of immigrants' economic position in their new country. Hebrew proficiency played a significantly positive role only for Western immigrants, as did living in an ethnically homogeneous neighborhood. Another study of FSU immigrants examined the correlation between their quality of life and their sense of success in the migration process. Quality of life emerged as a good indicator of perceived success in the migration process (Benish-Weisman & Shye, 2011).

In keeping with quality of life literature, many Israeli studies address adolescents. The well-being of FSU immigrant adolescents arriving in Israel without their parents was investigated in a 3-year longitudinal study, tracing the adolescents before and after their immigration. The study found that the ► **psychological well-being** of the young immigrants was highest during the premigration period. This feeling declined in the first year in Israel, but improved in the third year. Throughout the entire period of the study, the immigrants' psychological well-being was higher than that of the non-emigrating adolescents who remained in Russia and Ukraine (Tartakovsky, 2009). In another study, the life satisfaction of adolescents from the FSU and their Israeli classmates was examined. The findings indicate that immigrant adolescents as compared to their counterparts expressed less satisfaction with their lives, but the length of stay in Israel was positively related to the level of their life satisfaction (Ullman & Tamar, 2001).

As for adolescents of Ethiopian origin, preliminary evidence from qualitative studies based on small samples shows that their perceived quality of life and feelings of belonging to the Israeli society is related to their strategies of coping with discrimination and racism.

The study of quality of life in Israel focuses on Israeli citizens and thus on Jewish migrants. Several studies provide more subjective information related to labor migrants and refugees in Israel, focusing on specific immigrant groups. For example, a study on undocumented (illegal) Latina female migrants in Israel indicates that those who managed to move from live-in to live-out domestic service reported a substantial improvement in their quality of life, allowing them to control their time and private life, and to mix with Israeli society and with the Latina community (Raijman, Schammah-Gesser, & Kemp, 2003). Other studies focus on the psychological distress and mental health problems of specific labor migrant groups (e.g., Thai migrants working in agriculture or asylum seekers from Sudan), but do not address key elements related to the subjective well-being of these immigrants.

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Immigrants, an Overview

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Synonyms

Integration of immigrants; Transmigrants

Definition

This entry defines quality of life from the perspective of immigrants. Among others, it reviews quality of life affecting the immigrants' decision/ability to migrate, measuring successful immigration/integration at the host country, and the challenges of measuring quality of life in terms of migration; it finishes by reviewing quality of life as a factor motivating immigrants' engagement in transnational practices.

Description

Quality of life is related to immigrants in at least four different possible forms:

1. Quality of life as affecting the immigrant's desire or possibility to move
2. Quality of life as a measure for successful immigration

3. Quality of life as affecting returning/homecoming immigrants even within the second generation
4. Quality of life as a factor motivating immigrants to develop transnational engagements back home

Defining Quality of life

Debate exists as what the definition of "quality of life" ought to be; in general the various definitions suggested by researchers have tended to concentrate in the "wants" and "needs" that contribute to "well-being." Reviewing the definitions of quality life offered in the context of migrations reveals that they are both individually as well as socially defined and "...quality of life' issues are subjectively experienced, and strongly influence people's decisions to migrate" (Phillips & Potter, 2009, p. 240).

Quality of Life as Affecting the Decision/ Ability to Move

Throughout decades, researchers had intended to shed a light into the factors which influence immigrants' decisions to engage in migratory movements. Some of them see migration as a cognitive decision taken out of balancing the costs and benefits of the migratory movement.

Everett S. Lee (1966) suggested a schema in order to study and understand migratory movement. Lee conceives migration as a scheme composed by interacting forces at the home and host countries. At the home country the immigrants experience factors either "pushing" them to immigrate or "holding" them to stay in their current places of residence; in addition to the forces at the home country, there are "pull" variables causing potential immigrants to be attracted to immigrate or forces "repelling" them to do so. Between both places, a set of intervening factors play a role of either facilitating or making migration more difficult.

In order to overcome those intervening factors, immigrants require a minimal amount of human, economic, and social capital; therefore, as better their currently quality of life is, the simpler overcoming intervening factors will be. In this case, a certain quality of life serves as a precondition to ignite migratory movement.

In weighing opportunities and risks, potential immigrants might choose to use migration as a mean either to achieve elements they are lacking at their current place of residence/change their current conditions (innovative migration) or to maintain their current condition (conservative migration) (Petersen, 1958); in these senses, quality of life serves the function of motivator of migratory movement.

Immigrants might move in search to improve their quality of life regarding employment, separation from friends or family members living elsewhere, housing conditions, availability (or quality) of services within a certain neighborhood or community, and climate or environmental conditions.

In a research about American mobility (Taylor et al., 2008), the researchers found, for example, that college education is a key marker of the likelihood to move (77 % of college graduates have changed communities at least once compared to 56 % of those with only a high school diploma or less).

American “stayers” have a greater number of extended family members who live within an hour’s drive from them in comparison to American “movers”; 74 % of “stayers” stated the tug of family ties as the main reasons influencing their decision to remain in their current places of residence, 69 % claimed desiring to remain where they grew up, 59 % belief their current communities are good places to raise their children, and only 40 % considered job or business opportunities as the main reason to stay at “home.”

A major reason for “movers” to choose their current community were job or business opportunities (44 %), followed by the consideration of the new community as a good place to raise children (36 %), and family ties (35 %).

Quality of Life not only influences the movement of immigrants but it might also influence the migratory behavior of their children. Researchers have exemplified the ways quality of life factors influence the decisions of young second-generation migrants to return home (Phillips & Potter, 2009).

Quality of Life as Measuring Successful Immigration

Several studies of immigration and quality of life tend to compare immigrants to the population in the host country. Nevertheless, inferring from comparisons between immigrants and the local host population is exposed to be biased by many variables. An alternative approach (Benish-Weisman & Shye, 2011) proposes to compare the quality of life among different immigrant groups, in particular between those who consider their immigration to be a success and those who feel the opposite.

The variable of quality of life is treated in immigration research, more often than not, as criteria symbolizing immigration outcomes; more so, not enough attention is given either to the relationship between the quality of life and the subjective assessment by the immigrants themselves or to identifying the most important aspects of quality of life for successful immigration.

Internal locus of control is positively connected to psychological well-being of immigrants, while external locus of control is positively connected to bad adjustment of sojourns; social support following immigration facilitates better mental health and is associated with a decrease in depression and increase adjustment. In fact, personality and social traits of the immigrants are believed to be more important than the material components in assessing a successful immigration.

Michalos (1997) lists what he believes are the most critical issues related to migration and the quality of life:

1. Settlement/aggregating area sizes (either international communities, countries, regions within countries, cities/municipalities, suburbs, neighborhoods, or dwelling units)
2. Time frames (what are the time intervals data is collected)
3. Population composition (data regards the sociodemographic characteristics of the population)
4. Domains of life composition (which domains of life have an impact on immigrants lives)

5. Indicator selection (which indicators should be used to measure aspects of quality of life)
6. Measurement scales (for the indicators)
7. Decision makers (who decides which domains of life are the most important to monitor, for which people, scaled in what way, over what period of time, etc.)
8. Quality of life model (the function form or aggregation form of the model)
9. Distribution (measures of central tendency, measures of distribution, variation, and inequalities)
10. Distance impacts (where does the person live?)

Challenging the Ability to Measure Quality-of-Life in the Context of Migration

The place of residence of any individual, however, is not easily definable, and this presents a serious challenge to researchers' ability to accurately measure quality of life:

1. There are wide and substantial gaps between quality of life indicators as measured by researchers and the way immigrants perceive their own circumstances.
2. People tend to commute large distances in a daily basis for work, services consumption, or leisure. This makes more challenging to define an individual's living space.

Globalization, easy travel, and electronic communication have made movement an inextricable characteristic of our time. Movement has become fundamental to modern identity, and traditional conceptualizations of home may no longer be relevant. French anthropologist Marc Augé claims that *non-places* have become the real measure of our time and essential components of everyday experience. From this point of view, no place is completely itself and separate, and no place is completely other.

Traditionally, *home* was seen as the fixed and stable physical center of one's universe, a principal focus of one's concern and control (Rapport & Dawson, 1998). Breaking with traditional views of home, Roger Rouse claims a far more radical conception: Home

should come to the fore as something *plurilocal*, something to be taken along whenever one decamps. Angelika Bammer states that home "...is neither here nor there...rather, itself a hybrid, it is both here and there – an amalgam, a pastiche, a performance."

Others, like John Berger, find *home* in the routine set of practices or a repetition of habitual interactions, or even as the "place where one best knows oneself..." (Rapport & Dawson, 1998, pp. 7–8).

3. Due to improvements in communication and transportation technologies and the dissemination of multicultural policies in integrating immigrants, more and more immigrants tend to choose, manage, and develop transnational migratory behaviors; transnational migrants are defined as "...those whose networks, activities and patterns of life encompass both their host and home societies. Their lives cut across national boundaries and bring two societies into a single social field... Transmigrants develop and maintain multiple relations – familial, economic, social, organizational, religious, and political that span borders...take actions, make decisions, and feel concerns, and develop identities within social networks that connect them to two or more societies simultaneously" (Glick Schiller et al., 1992).

Quality of Life as a Factor Motivating Immigrants to Develop Transnational Engagements Back Home

Transnational immigrants engage in a broad range of transnational social, financial, and political day-to-day practices.

Remittances are one field of transnational engagement which has received particular attention. Immigrants might send remittances to enhance the development of their own family members but might also participate in sending social remittances through hometown associations (HTAs). These associations are immigrants' organizations who "raise funds for the betterment of their places of origin"

(Orozco & Welle, 2005); they have proven successful in contributing to development at sending states although the impact of that development depends on the extent these organizations and local communities share a commitment to invest in projects (Idem). There are differences among different groups in respect to rate of membership and participation in HTAs: Among immigrants to the USA, for example, Orozco and Garcia Zanello (2009) found that 57 % of Ethiopians, 38 % of Paraguayans, 23 % of Ghanaians, 22 % of Nigerians, 20 % of Dominicans, and 16 % of Mexicans belonged to a hometown association.

Remittances are intended to boost sustainable development of the communities of origin, and therefore they have a large visible effect on the quality of life of the nonmigrant population; they can be either of a personal (individual family members to their families) or collective character (collective remittances sent by hometown associations and directed towards community projects).

Their engagement in these practices might be seen as an effort to improve the situation of their family members who stayed at their home communities of origin: "...remittances exhibit a social development function allowing for the protection of the recipient's well-being...they can be a source of asset building, social protection, and livelihood survival. Social protection encompasses health and education services that are two key expenses in remittance recipient households" (Orozco and Garcia Zanello 2009, p. 324), but they do not only improve livelihood at the household level, they also have a positive effect at the community level: "The potential role of remittances in social and economic reproduction of sending communities has been widely acknowledged" (de Haas, 2010, p. 9).

Registered remittances reached in 2008 a total of \$443.5 billion worldwide (de Haas, 2010); however, it is necessary to take in account that this sum does not take in consideration neither unregistered remittances nor social remittances sent through hometown associations.

Remittances sending is also a venue, transnational immigrants use, in order to increase their

own quality of life on both their current country of residence and their home countries. Through their transnational engagement back home, immigrants increase their social capital and paradoxically facilitate their integration into the hosting society.

Cross-References

- [Adaptation](#)
- [Multiculturalism](#)

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Immigrants, Parenting

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Synonyms

Fathering and immigrants; Mothering and immigrants

Definition

Parenting is broadly defined as “assuming responsibility for the emotional, social, and physical growth and development of a child” (Smith, 1999: ix). If parenting is one of the most complex tasks of adulthood, it may be even more of a challenge for immigrant parents who are also faced with the daunting task of transitioning into a different social, economic, and cultural context.

Description

Existing studies of immigrant parenting have mostly focused on Asian, African, Latino, and Caribbean immigrants in a small number of Western countries such as the USA, Canada, and Australia. A predominant picture constructed through the literature is that the immigrants from these non-Western countries have moved from collectivistic or communitarian cultures where familial piety, interdependence, hierarchy, and obedience are emphasized, to an individualistic culture, where independence, equalitarianism, and self-efficacy are of paramount value (Kim & Wong, 2002; Nguyen, Messé, & Stollak, 1999). Immigrant parents, as such, depending on their countries of origins, are believed to be more authoritarian, controlling, showing less warmth, and using more physical disciplines than their western counterparts (e.g., Kim & Wong, 2002; Renzaho, Green, Mellor, & Swinburn, 2011).

Fontes (2002) observed that “child rearing is highly influenced by ethnic culture. What children need to learn and the methods considered best for teaching them are passed down from one generation to another as cultural knowledge” (22). The parenting practices of immigrants are affected not only by their ethnic culture but also the mainstream culture in the host society. It is believed that the degree to which immigrants acculturate in the host society has significant impact on immigrants’ parenting beliefs and practices: supposedly the more acculturated the parents are, the more likely that they would adopt the western parenting paradigm (Yagmurlu & Sanson, 2009).

Compared with their children, adult immigrants acculturate much slowly (Yagmurlu & Sanson, 2009). Intergenerational acculturation gap has posed a significant barrier for immigrant parents. Greater acculturation gap is found to be associated with a range of negative children outcomes, such as lower social competence, lower life satisfaction, higher levels of depression, increased anxiety and lower self-esteem, heightened family stress, and, in some cases, greater likelihood for substance use (Costigan & Su, 2008).

Of note, acculturation, as measured in most studies, simply means degrees of assimilation to the host culture. Deeper acculturation, manifested by frequent use of host language, adopting mainstream values, and greater engagement in the host culture, may lead to better outcomes for families and children. Nguyen, Messe, and Stollak’s study (1999) of Vietnamese youth in a primarily Anglo-American community shows that the youths’ involvement in the host culture predicated positive adolescents’ functioning in terms of personal mental health, family relationship, and school achievement, while involvement in the Vietnamese culture is positively related to family relationship but negatively related to personal adjustment such as distress levels. Some other studies however point at the importance for immigrants to be connected to both ethnic and mainstream cultures. For instance, a study of 388 Hispanic families (Sullivan et al., 2007) shows that integrated children who both adopt receiving culture and at

the same time maintain heritage culture report highest levels of parental involvement, positive parenting, and family support. On the other hand, assimilated youth, who do not retain heritage culture, reported the greatest levels of aggressive behaviors. This mixed and highly complex picture underscores the limitation to understand parenting solely from a cultural perspective. Contextual factors need to be taken into account to understand immigrant parenting practices and effectiveness.

The cultural frame adopted in immigrant parenting studies is problematic also because of its inherent Eurocentrism. Researchers often use western concepts and measures to construct immigrants' parenting beliefs and practices. This is not to say that researchers have not tried to be culturally sensitive. Indeed, some researchers have strived to achieve cross-cultural and cross-language equivalency of parenting measures. Some have exercised care when using and translating western measures. Still, studies tend to treat European parenting as the standard and anchoring points of discussion, and immigrant parenting has largely been constructed as variation from the parenting norms practiced by middle-class parents of European ancestry. Part of the problem, as Kim and Wong (2002) have pointed out, is that there has been a lack of efforts to make use of notions and concepts indigenously derived in immigrant home cultures to understand immigrants' parenting practices.

To date, the most widely used parenting framework is Baumrind's typology of authoritative, authoritarian, and permissive parenting. There is agreement between studies on both immigrant parents or nonimmigrant parents that permissive parenting is often associated with negative child outcomes. For instance, in a study of 800 African American and Latino youth, Roche, Ensminger and Cherlin (2007) found that permissive parenting, in the context of high-risk neighborhoods, correlates with more problematic behaviors in youth, such as delinquency, depressive symptoms, and school problem behaviors. When it comes to authoritative versus authoritarian parenting styles, significant differences have been identified in the

development outcomes of children from immigrant and non-immigrant families. While authoritative parenting is largely endorsed and authoritarian parenting denounced, the latter has led to both positive and negative outcomes for immigrant children (Steinberg, Dornbusch, & Brown, 1992; Chao, 2000; Kim & Wong, 2002). Recognizing that Baumrind's typology may not entirely fit with the experiences of immigrants, Chao (2000) has identified "training" as an alternative parenting style, which may be of more relevance to Asian immigrants, particularly the Chinese. There is however still a need to engage the perspective of immigrant parents, rather than using existing categories to understand immigrants' parenting styles and practices.

While researchers often approach immigrant parenting from a cross-cultural psychological perspective, culture is not the sole determinant of parenting. Belsky identifies three types of determinants of parenting practice, which are (1) parents' personality and psychological well-being, (2) contextual subsystems of support, and (3) child characteristics. Foss (1996) further expands Belsky's determinants of parenting to reflect the unique experiences of immigrants. In particular, Foss included premigration and migration experiences, postmigration experiences, ethnicity, and the social economic environments as key contextual determinants. Of note, rarely have immigrant parenting studies addressed the premigration experiences of immigrants or their particular migration experiences. Among others, one largely overlooked factor that may influence immigrants' parenting practices is immigration status. Refugees, for instance, many of whom are victims of genocide, war, and torture, may have experienced trauma and therefore may face particular parenting challenges. Undocumented or illegal immigrants, given their uncertain legal status, may face yet another set of challenges. In one study, Machado-Casas (2009) explored how Mexican, Salvadoran, and Guatemalan immigrants of indigenous backgrounds use language as a survival tool in the USA. This study shows that when schools were blaming the parents for not properly teaching their children, the parents were in fact passing on knowledge to their children so

that they could manage their lives as undocumented persons as well as function in transnational cultural and linguistic spaces. Clearly, there is a need for host institutions to understand contextual nature of immigrants' parenting practices with special attention to families' immigration status. Otherwise, miscommunication and misunderstanding may result.

Families' socioeconomic status (SES) also plays a mediating role in parenting practices and outcomes (Pong, Hao, & Gardner, 2005; Roche, Ensminger & Cherlin, 2007). In a study in Canada (Beiser, Hou, Hyman, & Tousignant, 2002), it was found that the effects of poverty on children's mental health among long-term immigrants were primarily mediated by single-parent status, ineffective parenting, parental depression, and family dysfunction. Yet, the mental health effect of poverty among foreign-born children could not be explained by the disadvantages that poor families normally face. The study concludes that persistent poverty has stronger negative effects on children's outcomes than occasional and transient poverty. What researchers need also to note is that immigrants' class status, which necessarily impacts how they bring up their children, is not solely defined by their relative economic status in the host country. Future studies may refer to Bourdieu's work on class to understand immigrants' parenting habitus and practices that may differentially shelter children from the impact of transient poverty during the initial period of settlement.

One other emerging determinant of immigrant parenting is the changing family structure in the transnational context. In Judith, Landolt, and Goldring's study of motherhood of Latin Americans in Canada (2005), they point out that mother-child relationships and family networks are transformed by transnational, multi-local organization of families that face separation and reunification. The changing structure of immigrant family has become more prominent with the increasing transnational movement of immigrants. A focus on parenting in the transnational context will most definitely contribute to the existent body of knowledge on immigrants as parents.

Finally, it has long been recognized that gender is a significant determinant of parenting that should receive more research attention. Studies of parenting are traditionally interested in mothering. The focus on fathering is relatively a recent development of the literature. While there has been increasingly more research of fathering of different ethnic groups (Kim & Wong, 2002; Costigan & Su, 2008), much work is needed to understand how immigrant fathers perceive their roles as parents, which is related to their differential involvement in children's lives. Future studies may also consider the interrelations between fathering and mothering and try to understand children's outcomes as a combined effect of paternal and maternal care and support.

Cross-References

- Culture
- Parenting Style
- Self-esteem
- Socioeconomic Status (SES)
- Stress

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Immigrants, Responses to

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Synonyms

Immigrant diversity planning; Immigrant policies; Integration models; Integration policies; Minorities policy; Multicultural planning; Multiculturalism policies

Definition

The concept of “responses to immigration” refers to the discursive framework, policies, programs, and services that governments and nongovernmental actors have adopted with respect to the admission, settlement, and/or integration of international migrants in their jurisdictions and communities.

Description

The term is most often used in the Canadian urban policy literature to describe the discourse, policies, programs, and services that local governments and nongovernmental actors adopt in their approaches to settling and integrating voluntary immigrants and refugees (Esses, Hamilton, Bennett-AbuAyyash, & Burstein, 2010; Good, 2009; Graham & Phillips, 2007; Poirier, 2004; Tate & Quesnel, 1995; Tossutti, 2009; Wallace & Friskin, 2000). These initiatives may cover a broad range of activities in the areas of employment, economic development, public health, social services, housing, culture, recreation, policing, public space, and communications. In the United States, the term has appeared in works on local and state approaches to integrating newcomers in emerging, reemerging, and pre-emerging immigration gateway cities (Singer, Hardwick, & Brettell, 2008), as well as to immigration-related bills introduced in state legislatures (Migration Policy Institute, 2007).

The related terms ► multicultural planning or diversity planning refer to a shift in thinking about conventional planning theories (Qadeer & Agrawal, 2011). Mainstream planning approaches and practices had been criticized for ignoring the diversity of traditions, customs, and values in multicultural cities and for elevating Anglo-European cultures into universal values (Burayidi, 2000; Milroy & Wallace, 2004; Sandercock, 2003). Critics of this approach proposed that planning theories should be founded on postmodern and postcolonial forms of

knowledge that allow for different forms of knowledge based on demographic (e.g., race, gender, and sexuality) and experiential (e.g., immigration and colonization) characteristics. Postcolonial discourse and postmodern planning theories emphasize ideas about identity and citizenship and consider interactions between dominant and oppressed groups (Viswanathan, 2009). The process of accommodating culturally defined needs and preferences requires the balancing of different interests and the creation of more inclusive planning processes. The multicultural or diversity planning literature encourages professional planners to consider equity and responsiveness towards ethnocultural minorities, through the accommodation of cultural differences (Burayidi, 2000; Reeves, 2005).

Many of the synonyms for this term have been used in the context of national politics. In the UK, Germany, and France, the term “immigrant policy” refers to national policy models developed in response to postwar immigration. In the Netherlands and Sweden, the terms “minorities policy” and “multicultural policy,” respectively, were used in the 1970s to describe the approaches of national authorities to the permanent settlement of migrants. During the 1980s and 1990s, these policies were criticized for increasing social distance between immigrants and host societies, for contributing to the ► **social exclusion** of immigrants, and for failing to achieve institutional reforms that accommodated newcomers. Group-based minorities and multicultural policies were subsequently replaced with “integration policies” aimed at the civic and ► **social inclusion** of individuals (Geddes, 2003).

Cross-national research has classified the discursive, legislative, and policy responses of national governments to the socioeconomic, cultural, political, and legal inclusion of immigrants (Brubaker, 1992; Castles, 1995; George, 2006; Hammar, 1985; Joppke, 1998). A main distinction has been drawn between the post-1973 integration policies of western European countries and those of the classical immigration countries of Canada, Australia, and the United States. Policies in “new world” countries, where

immigration is accepted as a crucial element of building society, where public debates do not fundamentally challenge the desirability of immigration, and where there is an elaborate institutional setting to handle migration, are described as explicit and proactive on this front. Since these conditions have been absent in most western European countries since 1973, immigrant integration policies at the national level developed relatively late and were largely ad hoc, reactive, and control-oriented, with the exceptions of the United Kingdom, Sweden, and the Netherlands (Penninx, Kraal, Martinello, & Vertovec, 2004).

A large body of European research has been devoted to accounting for divergence in state-level immigrant policies or integration models. Explanations of intercountry variations point to the role of distinct notions of the nation and state, the institutional heritage, the political culture of civil society, and the interaction between migrant groups and the host society (Mahnig & Wimmer, 2000). A rival tradition argues that policy responses to immigration in Europe converged in the 1980s and 1990s as a result of the growing importance of the post-national model (Soysal, 1994), whereby the rights and legal status of migrants are determined by international legal instruments and universalistic rules that are formalized and legitimized by transnational norms and codes. Freeman (1995) argues that liberal democratic values will, in the long run, lead to a liberalization of immigrant policies and identical policy results.

The growing corpus of literature on local involvement in decision making about immigration reflects international trends in the decentralization of governance over this policy domain (Collett, 2011). As a result, typologies have been developed to classify philosophical and empirical responses to immigration at the local level. Alexander (2004) has applied Simmel’s host-stranger relations theory (1908), which is concerned with how individuals and societies define membership and belonging, to identify five distinct attitudinal and policy responses to labor migrants in the legal-political,

socioeconomic, cultural-religious, and spatial policy domains in 17 European cities. His proposed transient, guest worker, assimilationist, pluralist, and intercultural models distinguish between official attitudes about the temporal and spatial presence of migrants and expectations and attitudes about the preservation of their ethnic, racial, and religious “otherness.” Poirier (2004) has drawn on host-stranger relations theory to analyze the responses of local authorities in Montreal and Toronto with respect to the recognition of cultural difference in the public sphere. Variants of the assimilationist and pluralist models of integration are used to describe official discourse and policy and program responses in six Canadian cities (Tossutti, 2009, 2012). Other local typologies have classified cities on the basis of the policy styles of municipal authorities (proactive, reactive, or inactive) or on the basis of the breadth of activity across policy domains (Good, 2009; Tate & Quesnel, 1995; Wallace & Frisken, 2000).

Urban policy scholars have also attempted to account for intercity variations in approaches to settling and integrating newcomers. The proportionate size of the immigrant population, the timing of recent immigration, and the electoral strength of minority communities exerted little to no influence on variations in responsiveness between Greater Toronto Area municipalities (Wallace & Frisken, 2000). Factors that were consistently linked to proactive responses included an early start to developing programs for the immigrant community, greater fiscal capacity, a triggering event such as an influx of refugees or heightened racial tensions, and sympathetic political leadership. The influence of nonprofit or immigrant service provider agencies and senior government policies and programs varies according to the type of community and the municipal government’s openness to outside stimuli (Frisken & Wallace, 2003). Good (2009) has argued that municipalities with lasting public-private coalitions dedicated to cooperation on these issues and biracial ethnic configurations were most likely to respond to ethnocultural change.

Cross-References

- [Cultural Diversity](#)
- [Ethnic Minorities](#)
- [Immigrants, an Overview](#)
- [Migration, an Overview](#)
- [Multiculturalism](#)

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Impact of Event Scale

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Definition

The Impact of Event Scale is a 15-item, four-point, self-report measurement developed to assess the subjective distress resulting from exposure to major life events.

Description

The Impact of Event Scale has been used widely in different populations and with a variety of traumas, in order to assess stress reactions. It consists of two subscales which measure intrusion (items 1, 4, 5, 6, 10, 11, 14) and avoidance (items 2, 3, 7, 8, 9, 12, 13, 15) experiences. The conceptual background of the measure has its origins on the stress response theory and on the information processing theories, namely, the way an individual copes with the subjective impact of stressful life events (Sundin & Horowitz, 2003). When individuals experience a trauma, they tend to oscillate from intrusion to avoidance experiences. This switch model seems to become less sound across time (Sundin & Horowitz, 2002). In addition, Creamer, Burgess and Pattison (1992) suggested that intrusion and avoidance operate as a mediator between exposure to trauma and posttraumatic level of adjustment. Intrusive thoughts indicate that cognitive processing has been activated, whereas avoidance operates as a coping strategy against the stress intrusion has caused (Creamer et al. 1992). However, avoidance may operate as an obstacle to the adaptation process because it interrupts the cognitive processing of the traumatic information (Sundin & Horowitz, 2002).

Development: Situational changes and their potential impact on people's life as a research

area developed during the 1970s. Horowitz, Wilner and Alvarez (1979) constructed the Impact of Event Scale to assess the subjective stress following a trauma based on previous psychological findings about the human tendency to react to a traumatic situation with intrusion and avoidance episodes.

"Intrusion was characterized by unbidden thoughts and images, troubled dreams, strong pangs or waves of feelings, and repetitive behavior. Avoidance responses included ideational constriction, denial of the meanings and consequences of the event, blunted sensation, behavioral inhibition or counterphobic activity, and awareness of emotional numbness" (Horowitz et al., 1979).

Based on previous studies and clinical experience, the developers of the scale chose their items from a pool of statements of people who had described their subjective stressful experience related to a specific life event. These sentences were not specifically worded in order to cover a variety of events. Aiming to develop a measure that would provide investigators with a total score of subjective distress, as well as with two subscores of intrusion and avoidance, they developed two subscales: one of intrusive episodes and one of avoidance. The item list was conducted for years to patients with stress response symptoms, as well as to healthy individuals who had undergone threatening life events. Regarding the appropriate time period that would provide researchers with clinically valid reports of subjective distress, pilot studies indicated that the "last week" was the best time unit to obtain reliable data (Horowitz et al., 1979). They ended up with an instrument consisting of 15 items and two subscales: intrusion (7 items) and avoidance (8 items).

Administration and Scoring: Respondents are guided to read the items that describe stressful experiences following a traumatic life event. They are asked to think about a major life event and then indicate the frequency of intrusion and avoidance experiences during the past 7 days on a four-point Likert scale (0 = not at all, 1 = rarely, 3 = sometimes, 5 = often).

The Impact of Event Scale provides researchers with a total score by adding all of the items, as well as two subscores summing separately the items of each subscale. The total scores ranges from 0 to 75, the intrusion scores range from 0 to 35, and the avoidance scores rage from 0 to 40 with higher scores to indicate greater frequency of intrusion and avoidance.

Psychometric Properties

Reliability: The Impact of Event Scale has demonstrated satisfying internal consistency reliability of the intrusion and the avoidant subscales with mean $\alpha = .86$ and $\alpha = .82$, respectively, supporting that each IES subscale measures a homogenous construct (Sundin & Horowitz, 2002). Test-retest reliability was assessed by Horowitz et al. (1979) in a small group of students over one week showing satisfying results (.87 for the total score and .89 and .79 for intrusion and avoidance subscales, respectively).

Validity: Content validity of the IES has raised many questions. It is not a PTSD measure as such, as it does not cover the DSM-IV criteria for PTSD diagnosis. Besides, it was developed to measure subjective stress caused by exposure to trauma. Researchers very often choose IES as a measure of cognitive processing of a trauma consistently to its conceptual framework (Joseph, 2000).

Despite several inconsistencies in the loading of some items, a great number of studies support the two-factor structure of the Impact of Event Scale (Joseph, 2000). Moderate correlations between intrusion and avoidance suggest that the two subscales evaluate different aspects of stress responses (Horowitz et al., 1979; Sundin & Horowitz, 2002).

In terms of convergent validity of the IES, a review of 23 studies reported that IES demonstrated moderate correlations with PTSD measures (ranging from .19 to .75) and therefore IES may “illuminate” distinct areas of posttraumatic reactions (Sundin & Horowitz, (2002)).

Moreover, the IES disposed cross-sectional sensitivity. Specifically, it is able to differentiate between a group that suffers from posttraumatic

symptoms and one that is free from symptoms (Schwarzwald, Solomon, Weisenberg & Mikulincer, 1987). Zilberg, Weiss and Horowitz (1982) reported very good psychometric properties for the IES, such as high internal consistency and sensitivity of the subscales to detect differences between groups and changes across time.

Discussion

The Impact of Event Scale is a general, user-friendly, self-report measure which was designed to assess the current subjective stress after a trauma. It has been translated in many languages such as Greek (Anagnostopoulos, Slater & Fitzsimmons, 2010), Italian (Pietrantonio, De Gennaro, Di Paolo & Solano, 2003), Chinese (Chen, Lai, Liao & Lin, 2005), and Tamil (Russell et al, 2004). Although it is a reliable and valid measure for subjective distress, it is not considered as a tool that establishes PTSD diagnosis, because it does not measure hyperarousal symptoms (according to DSM-IV criteria) (Sundin & Horowitz, 2002; Orsillo, 2002). However, the IES seems to be a useful measure to detect PTSD symptoms. Researchers usually use the IES to assess intrusion and avoidance as aspects of the cognitive processing of trauma and to examine their predictive role on posttraumatic adjustment (Joseph, 2000). More particularly, recent studies use the IES to assess the automatic (and uncontrolled) cognitive processing versus the deliberate (and conscious) efforts to process information (Anagnostopoulos et al. 2010; Salsman, Segerstrom, Brechting, Carlson & Andrykowski, 2009).

Versions

There is a revised version of IES, The Impact of Event Scale-R, a 22-item self-report measure with an additional subscale which assesses the hyperarousal symptoms of PTSD. Weiss and Marmar (1997) added the hyperarousal subscale (6 items) to cover the criterion D of DSM-IV PTSD diagnosis. They also added an item to the intrusion subscale (flashback item).

Directions are modified, and respondents are asked to rate in a 5-point scale their distress caused by a specific traumatic event, during the last week. The Impact of Event Scale-R provides researchers with a total score by summing all of the items and with three subscores by summing separately the items of each subscale. Concerning the scoring, the scale constructors recommended the use of the means of the scores instead of the sums (Creamer, Bell & Failla, 2003).

The Impact of Event Scale-R is a useful measure to assess subjective stress. In terms of the factor structure, the three-factor model cannot be supported across various data Creamer et al. (2003) suggested that this deficit reveals a more fundamental problem of the PTSD criteria validity.

Another alternative form of the IES is the Revised Children's Impact of Event Scale (CRIES-13), a 13-item self-measure designed to be used with children >8 years old. It consists of an intrusion subscale (4 items), an avoidance subscale (4 items), and a hyperarousal subscale (5 items). A limited number of studies suggested that CRIES-13 displays good psychometric properties with high internal consistency, and it is not a culture-bound measure (Giannopoulou et al., 2006). In terms of construct validity, the two-factor structure was confirmed and the existence of the hyperarousal subscale (closely related to intrusion) was also suggested (Smith et al., 2003).

Cross-References

- [Adaptation](#)
- [Construct Validity](#)
- [Content Validity](#)
- [Convergent Validity](#)
- [Distress](#)
- [Internal Consistency Reliability](#)
- [Life Events](#)
- [Likert Scale](#)
- [Mediator](#)
- [Post-traumatic Stress Disorder \(PTSD\)](#)
- [Reliability](#)
- [Stress](#)
- [Stressful Life Events](#)

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Impact of Housing Design on Crime

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Synonyms

Activity support, housing and crime; Crime pattern theory; Crime prevention through environmental design (CPTED); Criminologies of everyday life; Defensible space and crime; Housing access control and crime; Image and maintenance and crime; Routine activity theory; Situational crime prevention; Surveillance and crime; Target hardening and crime; Territoriality and crime

Definition

Christmann and Rogerson (2004), following a secondary analysis of a household survey data, concluded that measures to reduce crime in a ► neighborhood can make an important contribution to enhanced ► quality of life. The following discussion describes measures to prevent crime through the manipulation of the physical

environment in and around residential neighborhoods. It should be noted that the principles can be extended to cover the prevention of crime and enhancement of quality of life across other realms of life including the work place, across public transport networks, and in leisure time (Crowe, 2000).

CPTED aims to reduce the possibility, probability, and harm arising from criminal and related events and contributes to enhanced quality of life and community safety through the processes of planning and design of the environment (Ekblom, 2011). Cozens, Saville, and Hillier (2005) present the most recent outline of the approach and identify the key underpinning principles of CPTED as defensible space, territoriality, surveillance, activity support, access control, target hardening, and image maintenance and control. After a brief explanation of each of these principles, the supporting research evidence will be outlined.

The creation of *defensible space* (Newman, 1973) relates to the physical design of a neighborhood to foster people's latent sense of control over the spaces in which they live. Defensible space provides buildings and enclosures that help the owners and legitimate users of a space to keep illegitimate users and criminals out.

The creation of defensible space can be facilitated through design features that foster territoriality, the human ► motivation to control space. *Territoriality* helps users of spaces to distinguish between public, private, and semiprivate space, for example, through the use of fences, signage, and landscaping. Territoriality can, therefore, foster informal social control by facilitating and increasing the motivation of those responsible for a space to ensure control over it.

Surveillance involves using design to assist people to act as guardians of their neighborhood, increasing the probability that residents will spot suspicious or criminal behavior and then take appropriate action. Surveillance can be assisted with technology but also includes natural surveillance, which ensures that clear sight lines give maximum visibility and ensures that people are able to see and be seen by others.

Activity support ensures that there are sufficient numbers of people in, or passing through, a particular place, conducting routine, honest activities like shopping or dining; in so doing, their presence prevents or discourages offenders from committing crime.

Defensible space can be enhanced through *access control*. This includes both formal physical measures but also more subtle measures that aim to seamlessly guide users entering and exiting a space through the careful placement of signs, entrances, exits, and landscaping and placement of features in the environment.

Target hardening ensures that physical structures such as walls, windows, and doors are resistant to attack and/or penetration by criminals.

Image and maintenance are concerned with protecting the aesthetic appearance and social reputation of a building, place, or neighborhood. Maintenance ensures the continued use of space for its intended purpose and serves as an additional expression of ownership.

Description

Theoretical Background

Before outlining the evidence base for CPTED, it is important to understand its theoretical underpinnings. This is because CPTED stems from a branch of criminology, sometimes referred to as “criminologies of everyday life” (Garland, 1996) that represents a departure from “traditional” criminological approaches. Traditional criminology has sought to explain the onset and development of criminal motivation. In contrast, criminologies of everyday life seek to explain the processes that lead to the commission of criminal events. Ekblom (2011) distinguishes between the distal, longer term causes of criminal motivation and the proximate causes that prompt action at that time and place of a criminal event. Distal causes have provided the focus for traditional criminology; proximate causes are the principal focus of CPTED. Three, closely related, theoretical perspectives highlight the role of proximate causes and form the foundation of CPTED.

These are routine activity theory, crime pattern theory, and rational choice theory.

- Routine activity theory presents an explanation of the impact of ► **social change** on the supply of criminal opportunities. Cohen and Felson (1979) argue that three elements are required for a crime event to occur, a motivated offender, a suitable target, and the absence of a capable guardian. Changes in the daily life of a community bring these elements together or disperse them, altering the number and nature of available crime opportunities. Examples of social changes which alter the supply of crime opportunities include an increase in the availability of expensive consumer goods constituting an increased range of suitable crime targets and an increase in activities conducted away from home, leaving dwellings “unguarded” for longer periods.
- Crime pattern theory (Brantingham & Brantingham, 1993) presents a more localized explanation of the unequal distribution of crime opportunities and how these are encountered by offenders in the course of their routine activities. Research has demonstrated that criminals are more likely to offend within their “awareness space,” that is, the locations visited during the course of their everyday lives. Crimes tend to cluster around the key pathways that connect regularly visited locations as it is along these “pathways” that offenders identify and select opportunities for crime.
- The rational choice perspective (Clarke & Cornish, 1985) contends that offenders are goal-directed, choice-making actors. The perspective provides a micro level explanation of the decision-making processes undertaken by offenders once an offender recognizes a crime opportunity. This includes the “criminal calculus” during which the offender assesses whether the rewards of crime commission are outweighed by the effort and risk.

Bringing these three perspectives together, we can conclude that crimes can be prevented by taking steps to reduce the supply of crime opportunities (routine activity theory) and offenders’

access to them (crime pattern theory), and aim to manipulate offenders perceptions of the risks, efforts, and rewards of offending (rational choice theory).

Research Evidence

Over 50 years of research has amassed a great deal of evidence on the influence of environmental design on crime. In a review of over 50 research papers, Armitage et al. (2010) found general consistency in findings relating to what works in design against crime within residential estates. Successful design approaches can be identified at the level of the neighborhood, the design of individual homes, and with the application of security features to existing homes.

Neighborhood Layout

The area of housing design that has arguably received the most attention is the layout of residential streets and the degree to which they are connected with the surrounding environment. This is referred to variously as through-movement, connectivity, and permeability. Research has operationalized “through-movement” in a number of ways, including calculating the degree to which streets are connected to other streets and by classifying street types and comparing through-roads (highest through-movement) with culs-de-sac (lowest through-movement). The majority of research studies have found that houses located in estates or neighborhoods with high levels of through-movement are at higher risk of crime. Overall findings have been consistent across different countries and with different methodological approaches.

The evidence base overwhelmingly suggests that street layouts that allow vehicles and pedestrians to move easily through a neighborhood are associated with higher crime. Housing estates that are situated on key routes or provide shortcuts from one place to another inhibit defensible space and diminish residents’ abilities to exhibit territoriality. Several studies found that being located on a true cul-de-sac (with no pedestrian and vehicular connections) reduced the risk of victimization (Armitage, 2006; Armitage,

Monchuk, & Rogerson, 2011; Johnson & Bowers, 2010). Other studies have shown that the closure of streets can lead to a reduction in crime levels (Zavoski, Lapidus, Lerer, Burke, & Banco, 1999). Johnson and Bowers (2010) found that crime rates were highest among those streets with the greatest number of connections to other streets.

Three underlying mechanisms are thought to be responsible for the role of through-movement in increasing crime. Firstly, housing developments that allow vehicles and pedestrians to move easily through the neighborhood provide easy routes for entry and escape by potential offenders (see, e.g., Poyner & Webb, 1991; Taylor & Gottredson, 1987). Secondly, housing developments which are situated on common routes to and from other places are more likely to fall within awareness space, of potential offenders allowing offenders to select target properties as they take part in day-to-day activities (e.g., see Wiles & Costello, 2000). Finally, developments with high levels of through-movement offer increased levels of anonymity for potential offenders, as strangers moving through the neighborhood are nothing unusual (e.g., see Taylor & Gottredson, 1987).

However, there is one notable exception to the evidence regarding through-movement. Studies conducted using space syntax techniques (a mathematical approach which models how each street segment connects to other streets at the local and wider area) have concluded that increased levels of through-movement are associated with lower risks of crime (see Hillier & Sahbaz, 2009). One explanation for the disparity between these contrasting findings is that although space syntax allows a greater number of properties to be analyzed (Hillier and Sahbaz looked at 101,849 properties), by the same token this means that presumptions are made about movement and patterns rather than observing how a development is really used.

While the vast majority of criminological studies point to low connectivity as a crime reductive factor, increased connectivity is frequently viewed as a positive feature in urban design. The key benefit of connected

developments is that they ensure that people can get from A and B without taking unnecessarily lengthy routes. Permeable designs also allow public transport to travel close to residential properties. Therefore, permeable designs are associated with reducing the dominance of the car and the associated noise, pollution, and carbon emissions. These are factors that are also known to affect quality of life, thus highlighting a potential conflict in different quality of life objectives.

In addition to connectivity, neighborhood layouts can help to foster territoriality. Brown and Altman (1983) and Armitage (2006) found that both symbolic and physical boundaries (around individual properties or around entire estates) contribute to lower levels of crime. Not all research supports this link; Macdonald and Gifford (1989 cited in Reynald, 2011) found that the presence of physical barriers had no effect on burglars' target selection. Coupe and Blake (2006) suggest that these aspects of territoriality may be counterproductive in providing offenders with opportunities for concealment. Merry (1981 in cited Cozens et al., 2005) argued that the factors which signal territoriality will vary between cultures, neighborhoods, and individual groups.

In theory, gated communities provide the ultimate form of access control, although these are rarely recommended by proponents of CPTED. Blandy (2003) concluded that gated communities are not an effective response to crime and disorder problems. They are generally unattractive places to live, ► **fear of crime** can be higher than non-gated communities, and such estates generally foster a poor sense of a community. Armitage et al. (2010) found that the gated communities in their sample did not display lower crime compared to non-gated communities. Site visits revealed that access control at these estates was actually very poor with each of the gated estates having a number of points at which illegitimate access could be gained with ease.

There is a growing body of research on mixed-use neighborhoods that suggests opportunities for crime are reduced by virtue of the increased range

of activities (Poyner & Webb, 1991). It is contended that the systematic zoning of areas for particular uses reduces the number of potential "eyes on the street" (Jacobs, 1961). Steps to increase mixed use within a neighborhood include the provision of residential properties above retail units.

A final element of estate design that can influence crime is the image and maintenance of the estate. These factors can be addressed in the design stage through attention to architectural details and the use of durable materials. However, ongoing management is also required. Much research suggests that the routine maintenance of the urban environment will significantly assist in reducing crime (notably Wilson & Kelling, 1982 and more recently Cozens, Hillier, & Prescott, 2001). Wilson and Kelling's "broken windows" thesis stressed the vital importance of maintaining the environment as a physical indicator of levels of social cohesion and informal social control. It is important to stress that image alone may not be a crime reductive factor. Armitage, Rogerson, and Pease (2012) demonstrated that many housing developments considered excellent in terms of their design and architecture do not incorporate the design features associated with lower rates of crime. Therefore, good design, image, and maintenance are not sufficient in isolation to prevent crime.

House Design

Research has shown the features of an individual property, and the location of a property in relation to others can influence access control and the risk of crime. High-rise housing (flats/apartments) is often perceived to be at greater risk of crime; however, the research here is conflicting. Newman and Franck (1982) found that the greater the number of storeys within a development, the higher the risk of crime. Hillier and Sahbaz (2009) found that flats had the least risk of burglary. Hillier and Sahbaz's results suggested that the higher the number of sides on which a dwelling is exposed (high-rise flats above the ground floor not at all; detached houses on all four sides), the more vulnerable a property is to burglary. In a similar vein, properties located

on a corner plot have been associated with higher risks of burglary (see Armitage, Monchuk, and Rogerson, 2011). The literature supports the role of surveillance in influencing burglars' selection of target properties; properties that are not overlooked by neighboring houses are more attractive to burglars (Armitage et al., 2011; Brown & Altman, 1983; Winchester & Jackson, 1982).

In line with crime pattern theory, properties that are more likely to fall within offenders' "awareness space" are at higher risk of crime. For example, houses that are located within proximity to a road junction, a main road, public footpaths, a commercial business establishment, a park, church, or main road have all been shown to be at higher risk of burglary (Armitage, 2006; Groff & LaVigne, 2001; Winchester & Jackson, 1982).

Research evidence on the influence of security measures in preventing residential burglary is mixed. Maguire and Bennett (1982) found that security measures were of little consequence to burglars when searching for a suitable target. However, other studies suggest that with all other factors being equal, burglars prefer to offend against properties with lower levels of physical security. Budd (1999) found that security measures reduced the likelihood of burglary to dwellings.

Future Development

Authors from "traditional" divisions of criminology have suggested that design is not the means through which the social problem of crime should be reduced. They argue that approaches such as CPTED ignore broader social causes and only serve to support social problems in the long run. Criticisms of this nature stem from social determinism and assume that proponents of CPTED advocate an equivalent architectural or design determinism. There are, however, increasing proposals to incorporate a social element in a "second-generation CPTED" (Saville and Cleveland, 2003 In Cozens et al. (2005)), for example, by incorporating measures that aim to foster ► **community cohesion**. The incorporation of the social is critical when it is

recognized that physical measures do not operate in isolation but are instead mediated by neighborhood factors. This was recognized by Merry (1981) who argued that territoriality cannot be produced through physical design alone as it relies on two factors that are not always present: (1) that residents will always be present to look out of windows overlooking other properties and (2) that they will be willing and able to intervene. More recently, Reynald's (2011) analysis revealed that neighborhood composition is a contributing factor to residents' willingness to intervene and that residents of high-crime areas are more reluctant to intervene than those in low-crime areas.

Ekblom (2011) argues that CPTED currently has serious limits in its practical relevance and may even introduce harmful side effects including undesirable fortification. High on Ekblom's list of CPTED limitations is the lack of conceptual clarity. The interchangeability of terms such as connectivity, through-movement, and permeability has already been highlighted. Reynald (2011) highlights other key CPTED elements including territoriality which have also been variously defined and operationalized. This can lead to confusing contradictions within the evidence base. Future evaluation of CPTED should proceed with clearer definition and operationalization of concepts; Ekblom offers a suggested framework for this development. Further, Reynald (2011) and Armitage et al. (2011) both call for further studies that employ observation. Examination of estates on the ground can reveal surprising findings that help to understand why CPTED is, or is not, effective in a specific context.

Improved conceptual clarity will better reveal the complexities through which CPTED operates. This will allow for a more informed investigation into how different elements of CPTED interact. For example, several authors have highlighted the apparent contradiction between territoriality and opportunities for natural surveillance, a contradiction confirmed in Reynald's observational study (2011) which found that these measures were negatively correlated.

Conclusion

Housing developments last a long time, and their crime consequences are correspondingly long lasting. Studies have amassed a great deal of evidence to support the crime reductive effect of CPTED principles as applied to housing. CPTED has been an evolving concept since its inception and is currently undergoing further redefinition with the emergence of “second-generation CPTED.” Successful reconstruction offers the potential to further clarify the evidence base and to provide richer and more holistic housing design solutions.

Cross-References

- ▶ [Accessibility](#)
- ▶ [Land-Use Planning](#)
- ▶ [Neighborhood Disorder](#)
- ▶ [Urban Design](#)

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studies tends to be non-monotonic, and it is usually not possible to rectify the failure to collect data. This dropout (missing) problem can result in biased group comparisons. Thus, evaluating the impact of missing responses on HRQL estimation is important to ensure appropriate conclusions are drawn from the analyses.

Little and Rubin (2002) describe three missing data mechanisms: missing completely at random (MCAR) which assumes patient dropout is independent of all previous, current, and future response measures (such as HRQL scores); missing at random (MAR) which assumes dropout is independent of unobserved future response measures, but could be related to previously observed response measures; and missing not at random (MNAR) which assumes dropout is dependent on unobserved future response measures. For MCAR, missing longitudinal data could be dependent on covariates, whereas for MAR missingness could be dependent on the observed response measures (Troxel, Fairclough, Curran, & Hahn, 1998). Any violation of MAR is MNAR.

Different analytic approaches have been developed to appropriately account for different missing mechanisms in longitudinal data. Specifically, complete case analysis and last observation carried forward are often used when assuming missing completely at random (MCAR), whereas direct-likelihood, weighted generalized estimating equations (GEE) and multiple imputation combined with GEE are often applied when assuming missing at random (MAR). However, if missingness is non-ignorable (or MNAR), using such standard models can yield biased results. Thus, one must either demonstrate that the missingness has little effect or model the missingness as part of the analysis. Moreover, the assumptions of MAR and MNAR are not directly verifiable from the data; thus, sensitivity with respect to different missing mechanisms needs to be evaluated. In addition, issues about important distributional/modelling assumptions need to be addressed, and the normality assumption needs to be evaluated.

Selection models and pattern-mixture models (Little, 1995) have been traditionally used to deal

Impact of Missing Data on Health-Related Quality of Life Estimation

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Synonyms

Missing data mechanisms

Description

Health-related quality of life (HRQL) outcomes such as symptoms and functional well-being (www.facit.org) are commonly measured in longitudinal clinical studies, especially among chronic diseases like cancer. Often, one encounters unwanted missing data for a variety of reasons, including patient illness, refusal, death, or administrative error. Attrition in longitudinal

with longitudinal data with non-ignorable missingness (or MNAR), with the former ones specifying both the longitudinal and missingness processes and the latter ones incorporating missing pattern information in the longitudinal modeling (Hedeker & Gibbons, 2006). It is known that selection models are very sensitive to minor violations of distributional assumptions (Enders, 2011). While the pattern-mixture model is widely used for dealing with non-ignorable missing data for its simplicity and statistical rigor (Little, 1995), it can be very sensitive to misspecification. A newer, shared parameter model jointly models time to event (death or dropout) and longitudinal data by introducing a shared parameter between the time to event process and the longitudinal process and a negative association between the slope of longitudinal measurements and the hazard of dropout indicating non-ignorable dropout. This approach allows for flexible modeling of both the distribution of event times and of the relationship of the longitudinal response to the event time of interest (Schluchter, 1992; Vonesh, Greene, & Schluchter, 2006). This joint modeling approach permits more realistic distributions for dropout time (Schluchter, 1992) and simplifies the computation associated with the likelihood. Models of this type handle non-monotone missingness quite conveniently, and such models can be extended and generalized in many ways (Daniels & Hogan, 2008; Schluchter, 1992).

For HRQL outcomes, it is often not clear which patient characteristics are associated with loss of data, although those with a poor prognosis are typically more likely to have missing data as time progresses (Ibrahim & Molenberghs, 2009). Both the pattern-mixture model and shared parameter joint model have been applied to analyze HRQL outcomes (Li & Heitjan, 2006; Pauker, McCoy, & Moinpour, 2003; Zeng & Cai, 2005). Fairclough, Thijs, Hung, Finnern, and Wu (2008) have discussed approaches to handle missing data among HIV patients with respect to HRQL analysis, including the pattern-mixture model and joint model.

Most recently in 2011, the effect of missingness (dropout) on estimating an HRQL

outcome was assessed by Du, Hahn, and Cellia (2011). Data from the Functional Assessment of Cancer Therapy (FACT) Trial Outcome Index (TOI) (Bacik et al., 2004; Webster, Cellia, & Yost, 2003), measured in a longitudinal randomized clinical trial over 12 months for newly diagnosed patients with chronic myeloid leukemia, were used. A mixed-effects regression model assuming MAR was implemented, and then MNAR models (a pattern-mixture model and a joint model) were constructed to evaluate how parameter estimates vary in relation to their assumptions of missing data mechanisms and the impact of missingness on estimation of HRQL outcomes. A mixed-effects model is also known as a multilevel model, random-effects model, or hierarchical linear model and provides unbiased results if the model is correctly specified under the MAR assumption. In this longitudinal clinical trial, patients were randomly assigned to one of two treatment groups at baseline. The TOI score ranged from 0 (worst) to 108 (best) and was measured up to nine times for each patient, including baseline and months 1, 2, 3, 4, 5, 6, 9, and 12 after randomization. The primary HRQL endpoint was to determine if there was a difference in mean TOI scores between the two groups over time. The main covariates included treatment group (I vs. II), age (centered to mean), and gender. Among 1,049 patients randomized at baseline, a total of 979 were identified as having a baseline TOI score and were included in the analysis. The left skewed outcome (TOI) was square-root transformed in a double reverse fashion to correct for the left skewness, a situation in which a logarithmic transformation was not adequate whereas an inverse transformation tended to overcorrect.

The choice of the simple pattern-mixture model described in this study is based on the approach of Hedeker and Gibbons (1997). Two groups based on dropout patterns were created due to a large number of unique patterns with sparse data. While completers were defined as those with their last available TOI at month 12, all patients without month 12 TOI were treated as dropouts, and intermittent missing data were assumed to be MAR. As there were a large

number of unique patterns resulting in sparse data, subjects with different dropout patterns were combined into one dropout group. In other words, patient characteristics and TOI scores were assumed to be similar across dropouts, e.g., patients with only baseline data and patients who dropped out after month 6. Since misclassification could lead to bias and cannot be directly verified, patient characteristics (age and gender) that are in all the models were examined. Results suggested that patient characteristics (age and gender) were similar when comparing patients who dropped out after baseline or after month 6 or after month 9. The normality assumption of the transformed TOI also holds at different time points, suggesting that the normality assumption of the unobserved TOI for dropouts should also hold at different time points. These results provide reasonable evidence that the modeling strategy did not lead to bias due to misclassification. Often the model-implied means are plotted together with the observed means to visually evaluate model fit. In addition, a figure showing the intercepts and slopes of each of the dropout patterns can be very informative. However, since there were many dropout patterns with sparse data, the figure becomes hard to read; detailed pattern information can be summarized in tables for further reference if needed.

In addition to addressing the issue of skewness by the square-root transformation of the outcome, another important assumption about normal random effects (i.e., individual intercepts and slopes) was considered. One way to do this is to conduct a second type of sensitivity analysis by examining the change in important model-estimated parameters after modifying distributional assumptions, e.g., considering a non-normal distribution. Adding this sensitivity analysis was initially considered, and then it was discovered that substantial theoretical and simulation work (e.g., Hsieh, Tseng, & Wang, 2006; Huang, Stefanski, & Davidian, 2009; Tsiatis & Davidian, 2004) had been done on the robustness of the random-effects normality assumption in the past 5 years. From a practical point of view, the assumption about normal random effects is robust when the number of longitudinal measurements

per subject is large. From a theoretical point of view, the random effect structure and longitudinal measurements (e.g., TOIs) are related to the survival parameters only through the posterior density of the random effects (i.e., probability of a certain parameter given the data and the fixed effects parameters). This posterior can be approximated well by a normal density through the Laplace approximation (Tierney & Kadane, 1986) when the number of longitudinal measurements per subject is reasonably large. In addition, Rizopoulos, Verbeke, and Molenberghs (2008) showed that the maximum likelihood estimations (MLEs) obtained from the joint model with a misspecified random effect converges to that based on the correct model when the number of longitudinal measurements per subject increases. More specifically, Hsieh et al. (2006) have shown that when the longitudinal measurements are dense, the MLEs are robust against departures from the normal random-effects assumption in the joint modeling of time to death/dropout and longitudinal data, whereas if the longitudinal measurements are sparse (e.g., only three observations per subject), the MLEs may be substantially biased.

To address the concern of possible violation of the normal random-effects assumption (i.e., individual intercepts and slopes) described above, the frequency distribution of the number of longitudinal measurements per subject was examined. In the study by Du, Hahn, and Cella (2011), the majority of patients had more than three longitudinal measurements. In fact, more than 90 % of the patients had four or more longitudinal measurements, and the median was eight longitudinal measurements. Thus, the longitudinal measurements were dense, and this analysis provided assurance that the estimated MLEs were reasonably robust with respect to departures from the random-effects normality assumption.

Another issue concerns the associations among the random effects (intercepts and slopes). In the study by Du, Hahn, and Cella (2011), the correlation between intercept and slope was negligible ($r = 0.013$), so it was justifiable not to include the associations among the random effects of intercepts and slopes.

The joint model revealed significant between-group differences at each visit except for baseline. The parameter estimates (see Du et al., 2011 for full detail) were similar to those in the separate longitudinal and survival sub-models with a significant association parameter indicating negative association between the TOI slope and the hazard of dropout, thus suggesting non-ignorable dropout. The study by Du et al. (Du, Hahn, and Cella, 2011), used for demonstration here, showed that joint modeling was a useful means to quantify the relationship between dropout and outcome when non-ignorable missing data existed in longitudinal data. A slope association parameter of -1.989 (95 % CI: $-3.879, -0.099$; $p = 0.039$) indicates that patients with a more rapid decline in TOI would be expected to have a shorter time to stay in the study. In addition, it was good practice to examine model sensitivity with respect to underlying model assumptions in complex longitudinal data with non-ignorable missing data. It was found in this case that joint modeling was a relatively better choice compared to the simpler pattern-mixture model. Whether the joint model approach is superior to the pattern-mixture model in structuring the missingness in the estimation of the key parameters is not provable, however, because both models are based on unverifiable assumptions of MAR versus MNAR (Molenberghs et al., 1999).

Cross-References

- ▶ [Data Analysis](#)
- ▶ [Missing Data](#)
- ▶ [Survival Analysis](#)

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Impaired Mobility

- ▶ Mobility Issues for People with Disabilities

Impairment

- ▶ Disability and Health

Impairment at Work

- ▶ Work Limitations

Implicit Cost

- ▶ Opportunity Cost

Implicit Prejudice

- ▶ Prejudice

Importance of Approval

- ▶ Need for Approval Measures

Importance Rating(s)

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Synonyms

Priorities

Definition

Importance ratings indicate the relative importance or priority which survey respondents attach to different roles or different domains or sub-domains of life.

Description

A typical importance rating in quality of life research is obtained by asking respondents to rate the priority they attach to different domains of life (work, family, leisure, etc.) on a scale ranging from, say, 1 to 4 or 0 to 10 where the top end of the scale is marked “very important” and the lower end is marked “not at all important.”

Importance ratings have a checkered history in quality of life research. Clearly, researchers would like to know which domains and sub-domains of life matter most to people, and the obvious way to find out is to ask them. However, the Michigan pioneers of quality of life research found that importance ratings had low reliability, particularly low test-retest reliability. They also found that weighting satisfaction with particular domains by the importance attached to those domains *reduced* rather than increased the variance accounted for in overall life satisfaction (Andrews & Withey, 1976; Campbell, Converse, & Rodgers, 1976). The conclusion drawn from these results was that it is a mistake to ask about priorities because ordinary people are not philosophers and may give little thought to what matters most to them in life.

Instead of asking about life priorities, the main approach used in subsequent quality of life research has been to *infer* which domains matter most to people by observing which domain satisfactions covary most strongly with life satisfaction. Clearly, if this method is used, inferences cannot be made about the life priorities of individuals, but researchers can attempt to infer the priorities of populations or groups.

In recent years, importance ratings have made something of a comeback in quality of life research. Even when they had almost ceased to be used to assess life priorities, they continued to be used to ask about priorities within particular domains of life, including work and marriage. For example, researchers concerned with job satisfaction and occupational recruitment continued to ask individuals to rate the importance they attached to pay and material benefits (extrinsic satisfactions), to the challenge and interest of their job (intrinsic satisfactions), and to various other facets of their jobs (Hackman & Oldham, 1976).

Some researchers, notably the managers of the German Socio-Economic Panel, have taken a similar approach to assessing what have variously been termed life goals, life priorities, or “values” (Gerlitz & Schupp, 2005; see also Kluckhohn & Strodtbeck, 1961). They reasoned that the weakness of linkages between life goals and SWB found in previous research might be due to the fact that survey respondents had been presented with miscellaneous lists of possible goals, lists based on little prior understanding of what might matter most. Trying to overcome this problem, the German team factor analyzed a range of possible priorities/goals/values and found that three sets accounted for most of the variance: material and career priorities/values, family priorities/values, and somewhat altruistic values concerned with social and community life (Gerlitz & Schupp, 2005).

Subsequent research has found some evidence that individuals who prioritize material and career goals have lower levels of SWB than those who prioritize family goals or pro-social altruistic goals (Diener & Seligman, 2004; Headey, 2008; Headey, Muffels, & Wagner, 2010; see also Dunn, Aknin, & Norton, 2008;

Lyubomirsky, Sheldon, & Schkade, 2005). These findings remain controversial but are symptomatic of a renewed effort in quality of life research and positive psychology to find links between SWB and conscious life goals, priorities, and intentions.

Cross-References

- [Life Goals](#)
- [Positive Psychology](#)
- [Quality of Life Research](#)

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Importance Weighting

- [Scoring Weights](#)

Impoverishment

- ▶ Poverty, an Overview

Incapacity

- ▶ Disability and Health

Incarcerated People

- ▶ Institutionalized People

Inclusion of Nature in Self

- ▶ Affective Connection to Nature
- ▶ Nature Relatedness and Subjective Well-Being

Inclusive Education

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Definition

Inclusive education and quality of life, a process of becoming for children with severe support needs.

Description

Inclusion Is About the Right to Belong to Society

Inclusion starts with the premise that an individual has a right to belong to society and its institutions, which therefore implies that others have obligations to ensure that this happens. Inclusion

necessitates the removal of barriers that may prevent individuals from belonging. Removing those barriers implies structural and attitudinal changes and a fundamental shift from the deficit-oriented thinking that has for so long-driven educational practices.

Reindal (2010, p. 10) understands that inclusion has to be seen in relation to the core mission of education: “Parents send their children to school to be educated, not to be included. Inclusion is something one expects from the school’s practices so that their children will be treated fairly, protected from harm, and taken care of as well as not being excluded and isolated from classmates.”

Becoming as a Central Theme in Education and Quality of Life

Inclusive education can be considered as a process of becoming for every stakeholder involved and for education itself. Thinking in terms of constant movement creates opportunities to challenge stratification and categorization that try to lock up, close in, and narrow down.

From a rhizomatic perspective, our identity is never fully developed or completely fixed (Sotirin, 2005). It is constantly developing because expectations, experiences, values, beliefs, opportunities, and desires change over time and in interaction with the environment. It challenges organizational linear models of learning, hierarchies of authorities, and traditional notions of appropriate educational pathways. It seems to be true that education presents specific end points at different levels and in complicated structures.

Every subject is caught up in multiple, connective assemblages that are in continuous change. It is about and... and... and.... Thinking in terms of connections and assemblages is a useful way to look at the participation of children with a disability in class. It is depending not only on their capacities but also on their possibilities to make alliances. The social networks with other children, teachers, and support workers shape their becoming as a pupil; it is situated in a rhizomatic proliferation of connections and temporary points of assemblage.

Becoming Child

Many children with a disability in inclusive education have a (long) personal history of persisting and surviving, sometimes going through several education and health systems. Children are blurring and breaching boundaries in a constant stream of playing with certain social expectations. They live in between the “regular” and the “special” world. Within these multiple, heterogeneous, and rhizomatic processes of transformation of self and others, disability is understood as a new, unstable, and uncertain flux of self. Gibson (2006, pp. 191–193) stated: “A fluid body, not a subject, but a conglomeration of energies. It is an excitation, a point of contact... an AND: a re-imagining of disability as a fluid category that we can/will all move in and out of.”

Isarin (2005) talks about becoming child in terms of the “who” and the “what” of the child. The “what” defines objective or objectified differences between children in medical, psychiatric, and professional terms and categories. The “who” is the subjective singularity of the child. It is the person, regardless or just because of his/her disability. The “what” is coming together with everything that is not expected, not planned, not hoped, and not wished. It makes a clear difference between the child and his/her environment, a difference that is described in negative terms of deviance and behavior. The label(s) is (are) only part of the child. Behind the dominant and burdened disability hides the “who.” The “who” is through and through relational; it can only be recognized and acknowledged in relation with the person. It is the proper noun (the “who”) that sometimes threatens to disappear behind the generic name (the “what”). We cannot explain the “who”; we can only experience it in connection.

Becoming and Support

Be able to say what support is necessary, and learning how to handle support is part of becoming for children (and adults) with a disability (De Schauwer & Van Hove, 2011). Support cannot slow down or stratify becoming child with anxiety of overprotectiveness. “A person who cares for another with the attention required of good

caring, provides care and assistance when it is needed and not when it interferes with the other’s justifiable need and desire to be exercising her own agency. Both bearing the burden of unmet dependency needs, and being falsely seen to be dependent in ways that one is not, serve to exclude disabled people from participation and the possibilities of flourishing. Furthermore, people with disabilities are often thought to be disqualified from caring for dependents when in fact they can and do take on these responsibilities” (Kittay, Jennings, & Wasunna, 2005, p. 458).

Instead of using preset models and positions, children, parents, teachers, and support workers take on the features of moving in a relational and transforming field. Becoming needs becoming to the community. “Everything is involved in such a field, not only human subjects, but also the content of knowledge of different subjects as we know it, as well as the entire milieu. These are all in relation, as multiple identities encountering each other: it is the relation itself that is in movement, always becoming” (Olsson, 2009).

Cross-References

- ▶ [Intellectual Disability](#)
- ▶ [Interdependence](#)
- ▶ [Needs Assessment](#)

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Inclusive Research

- [Community-Based Participatory Research](#)

Income Deprivation

- [Objective and Subjective Deprivation](#)

Income Dispersion

- [Income Distribution](#)

Income Distribution

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Synonyms

[Income dispersion](#); [Income inequality measurement](#); [Inequality](#)

Definition

Income distribution refers to the study of how income, or more generally wealth or other variable related to (economic) well-being, is shared by the different members of a community.

Description

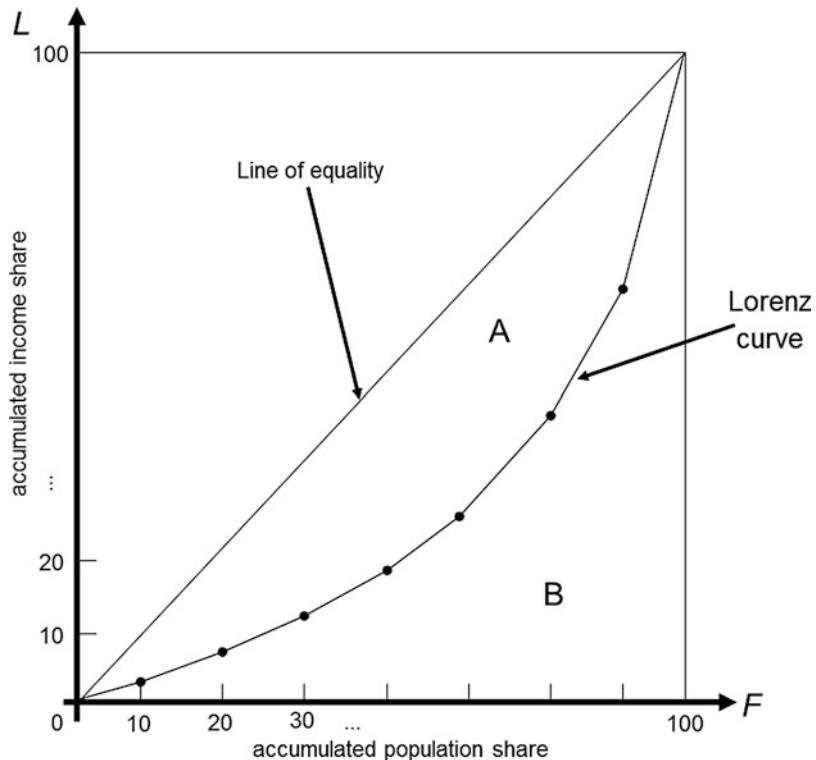
Income distribution, or inequality measurement, is a broader concept than ► [poverty](#) in the sense that inequality is concerned with the entire population, whereas poverty refers to a subgroup of the population who are below the poverty line. Techniques are, however, somewhat similar. The literature on income distribution is vast, and a good overview of the different aspects involved can be found in Atkinson & Bourguignon, (2000).

Inequality measures can be absolute, which depend on the mean income of the society, or relative, which are independent of the mean income and therefore concentrate mainly on distributional questions (for a discussion, see Kolm, (1976a, b)). The distinction parallels the difference between the standard deviation and the coefficient of variation as measures of ► [dispersion](#) in descriptive statistics. In this sense, relative inequality measures try to separate the problem of growth from the problem of distribution at a given level of income. Because the applied literature has clearly opted for a relative concept of inequality measurement, almost all the indexes we shall mention here belong to this category. Of course, even if we focus on the income concept, inequality measures can be calculated for distributions other than income or expenditure, for example, wealth, land, assets, tax payments, and many other continuous distributions.

To study income distribution, we need to clarify at the outset two important concepts: (i) the income concept, or more generally the variable whose distribution we are interested in, and (ii) the recipient of this income, either the individual, the household, or any other reference unit. For simplicity's sake, we shall refer to these as the income and the individuals, but the general framework for inequality measurement is much broader than this.

Once these concepts have been clarified, a simple way of approaching the income distribution is to order individuals according to their income, from the poorest to the richest, and divide the population into groups of equal size,

Income Distribution,
Fig. 1 (With permission
from Goerlich & Villar
2009)



for example, percentiles, deciles, or quartiles. From this grouping, the mean income of each subgroup is then reported, which gives you an absolute perception of inequality or the share of income accrued by each subgroup of the population, which then gives you a relative perception of inequality. From these quantities, you can easily construct a frequency histogram and thus obtain a first impression of what the income distribution looks like for a particular society.

A popular way of approaching the study of income distribution is to compare cumulative population shares with the corresponding cumulative income shares, after having grouped individuals in society from the poorest to the richest. The plot of these shares constitutes the well-known Lorenz (1905) curve. A typical example of the Lorenz curve is depicted in Fig. 1.

Under equality, that is, when everybody shares the same amount of income, the Lorenz curve becomes a straight line as shown by the main diagonal on the unit square in Fig. 1. When there is some degree of inequality, poor people

receive a lower share of income than the corresponding population share, and so we get the convex curve seen in Fig. 1. The lower the income share received by the poor, the higher the inequality will be; graphically, this will be reflected by a more distant Lorenz curve from the line of equality. Therefore, comparing Lorenz curves from different societies can shed some light on their relative inequalities.

Because the Lorenz curve does not provide a unique ordering of income distributions in many practical situations, numerous authors have developed inequality indexes with the aim of ordering different income distributions unambiguously. Most of these indexes relate to the Lorenz curve either directly or indirectly. One of the most famous is the Gini (1912) index, which relates the areas above and below the Lorenz curve and the line of equality. In particular, the ► Gini coefficient is defined as the ratio $A/(A + B)$, where A and B are the areas shown in Fig. 1. Note that $A + B = \frac{1}{2}$ and so alternative definitions for the Gini coefficient are $2A$ or $1 - 2B$.

Hence, if inequality is absent, the Lorenz curve coincides with the line of equality, $A = 0$, and the Gini coefficient takes value 0, whereas the maximum inequality is found when $B = 0$, and so the Gini coefficient takes value 1, which means complete inequality.

The Gini coefficient is a relative inequality measure, meaning that if all income doubles, then the index remains unchanged. In addition, it satisfies other basic criteria considered necessary for a good inequality index. In particular, the Gini coefficient satisfies the population replication principle, so if a society is doubled, the inequality remains unchanged; the symmetry principle, so if we swap incomes among individuals, the inequality is not altered; and the Pigou-Dalton transfer principle, which states that a transfer from a rich person to a poor person (without altering their ranks in the income distribution) should reduce measured inequality. These are the basic principles every inequality measure should satisfy.

Given that the Gini coefficient is not additive decomposable among population subgroups, we cannot break down the inequality in society into the inequality between subgroups and the inequality within the subgroups. Although this is not an essential property, it is a very useful one for policy analysis in that it allows us to discover the groups that contribute most to the aggregate inequality, and therefore we can target them for inequality reductions. If this property is essential, we should use the generalized entropy family of inequality measures, (Shorrocks, 1980), which is a generalization of the well-known Theil (1967) indexes of inequality, based on entropy theory.

The other widely used family of inequality measures is the Atkinson (1970) family, with a clear foundation in ► [welfare economics](#). In this context, inequality is seen as a reduction in the aggregate welfare of a society, as measured by a social welfare function. Thus, for a given income distribution, measured inequality depends on the inequality aversion of the society, as represented by a single parameter, and welfare is maximized when income is equally distributed among individuals.

Besides all these common inequality measures, which are common in applied studies, other descriptive statistics are useful in characterizing income distribution. Among them, we have the standard deviation, in an absolute sense, and the coefficient of variation or the standard deviation of the logarithm of income (which does not satisfy the Pigou-Dalton transfer principle), in a relative sense. But the most widely used measure from the descriptive statistic literature is probably the so-called decile dispersion ratio, which presents the ratio of the average income of the richest 10 % of the population divided by the average income of the bottom 10 %. Naturally, this ratio can be computed for other percentiles (20 %, 5 %, or 1 %), and, even if they lack some of the standard properties of the inequality measures (e.g., they do not satisfy the Pigou-Dalton transfer principle), they are very useful in showing what is happening at the extremes of the income distribution.

The literature on income distribution has evolved in different directions in recent years. On the one hand, some of the analyses have moved from a one-dimensional setting to a multidimensional framework (Atkinson & Bourguignon, 1982; Tsui, 1995), paralleling the ► [poverty measurement](#). The idea here is that income is merely one dimension of well-being and more dimensions should be taken into account for a full picture. On the other hand, some authors have redirected their efforts to a related but different concept, the polarization in income distribution (Esteban & Ray, 1994), instead of analyzing the inequality in income distribution. In other words, the focus is now on the exploration of group formation or clustering in the society, such as the poor and rich people in societies with a vanishing middle class (Milanovic & Yitzhaki, 2002). Although people are homogeneous in some characteristics within a group, groups are highly heterogeneous. And finally, some of the literature has shifted its attention to the analysis of the so-called inequality of opportunity. The main point in this case derives from considering the income of individuals as an ex post result of two processes: efforts and circumstances. While effort has a direct relation with decisions taken consciously by individuals,

circumstances (like sex, race, or place of birth) are completely outside their control, and thus the individual is not responsible for them. The inequalities that are most worrying are those that stem from differences in circumstances and not the ones that stem from differences in effort. Distributional justice should therefore focus solely on inequities derived from differences in circumstances, and individuals should be compensated for them. To sum up, we should focus the analysis on the inequality of opportunity (Roemer, 1996, 1998).

Cross-References

- [Composite Indicator\(s\)](#)
- [Dispersion](#)
- [Distributive Justice](#)
- [Economic Well-Being](#)
- [Gini Coefficient](#)
- [Income Redistribution](#)
- [Inequality in Quality of Life](#)
- [Poverty](#)
- [Poverty Measurement](#)
- [Social Welfare](#)
- [Standard Deviation\(s\)](#)
- [Wealth](#)
- [Welfare Economics](#)

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Income Evaluation Norms

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Definition

Income norms are the function individuals use to transform absolute income into perceived income. In other words, it is the metric that individuals use to describe how good their income is. The literature argues that it is perceived income and not absolute income what determines individual satisfaction with own life satisfaction or happiness (► [Happiness](#), ► [Subjective Well-Being](#), ► [Life Satisfaction Judgments](#), ► [Satisfaction with Life as a Whole](#)). Income norms depend mostly on individuals' past income, their future expectations, and individuals' reference group income (► [Interpersonal and Intra-personal Comparisons in Happiness Ratings](#)).

Description

An important determinant of individuals' quality of life ([► Perceived Quality of Life](#), [► Quality of Life](#)) is the economic achievements. Although income has a small role on explaining individuals' self-reported satisfaction ([► Happiness](#), [► Subjective Well-Being](#), [► Life Satisfaction Judgments](#), [► Satisfaction with Life as a Whole](#)), satisfaction with own income ([► Personal Income](#), [► Satisfaction with](#), [► Domain Satisfaction](#)) is one of the important determinants of satisfaction with life as a whole (Van Praag, Frijters, & Ferrer-i-Carbonell, [2003](#)). This means that it is not only income what matters for individual satisfaction but more importantly how individuals perceive their income. This is in accordance with the small role that absolute income has on explaining individual's self-reported life satisfaction. Individuals' income norms are the function that individuals use to transform their absolute income into perceived income. Individual income norms depend mostly on past income, anticipated (or future) income, and others' income. It is this relative income what matters for individuals' satisfaction or happiness.

The empirical work on examining the importance of relative income for individual quality of life on large data sets has been mostly based on the subjective well-being questions ([► Satisfaction with Life Scale \(SWLS\)](#), [an Overview](#)) and the Income Evaluation Question ([► Income Evaluation Question](#)) (see Clark, Frijters, & Shields, [2008](#); van Praag & Ferrer-i-Carbonell, [2011](#)).

Most of the empirical literature on income norms has focused on estimating the role of external comparisons to conclude that income of the others has a negative impact on own life satisfaction except from when it carries some information on expectations about own income. The empirical evidence shows that in Western countries there is a negative effect of the income of the reference group on own happiness ([► Reference Drift](#)) (Clark & Oswald, [1996](#); Ferrer-i-Carbonell, [2005](#); Kapteyn, Van Praag, & Van Herwaarden, [1978](#); Luttmer, [2005](#); McBride, [2001](#); Stutzer, [2004](#)). This means that if all income increase in the same way, individuals may not get much

happier from it. This has been used to explain the Easterlin Paradox ([► Easterlin Paradox](#)). These findings from Western countries contrast with the empirical evidence in less-developed countries for which a positive coefficient for the reference income has been found (Senik, [2004](#)). According to this author, the positive effect found in very volatile and rapidly changing countries can be assigned to the fact that individuals use the income of the others to make predictions about the evolution of their own income.

The literature has also found that individuals are sensitive to internal comparisons, although the amount of research is small and more controversial. Internal comparisons refer to the use of past and expected future income to evaluate own current income. The importance of past income for individuals' happiness depends on whether or not individuals adapt to income ([► Adaptation](#), [► Hedonic Adaptation](#), [► Preference Drift](#)). If individuals were to rapidly adapt to income changes, past income will only have a small role on evaluating current own income. Van Praag and Ferrer-i-Carbonell ([2004](#)) and Van Praag and Van Weeren ([1988](#)) empirically find a negligible role of past and future anticipated income for individual welfare ([► Individual Welfare Function](#)), although they stress the importance of weighting past and future incomes, as income far in time does not affect current satisfaction. Also using the individual Income Evaluation Question ([► Income Evaluation Question](#)), van de Stadt, Kapteyn, and van de Geer ([1985](#)) document the relativity of income by empirically estimating the importance of past income and of incomes of the others for own utility. Di Tella and MacCulloch ([2010](#)) use a life satisfaction question ([► Satisfaction with Life Scale \(SWLS\)](#), [an Overview](#)) and find that individuals rapidly adapt to their new income which means that past income is part of individuals' income norms only for a very short period.

Summary

Individuals' satisfaction with life depends not only on absolute income but most importantly

on how individuals perceive their income. The metric that individuals use to assess how good their income is known as income norms. Income norms depend mostly on past income, future expectations, and the income of the reference group.

Cross-References

- ▶ [Adaptation](#)
- ▶ [Domain Satisfaction](#)
- ▶ [Easterlin Paradox](#)
- ▶ [Happiness](#)
- ▶ [Hedonic Adaptation](#)
- ▶ [Income Evaluation Question](#)
- ▶ [Individual Welfare Function](#)
- ▶ [Interpersonal and Intrapersonal Comparisons in Happiness Ratings](#)
- ▶ [Life Satisfaction Judgments](#)
- ▶ [Perceived Quality of Life](#)
- ▶ [Personal Income, Satisfaction with](#)
- ▶ [Preference Drift](#)
- ▶ [Quality of Life](#)
- ▶ [Satisfaction with Life as a Whole](#)
- ▶ [Satisfaction with Life Scale \(SWLS\), an Overview](#)
- ▶ [Subjective Well-being](#)

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Income Evaluation Question

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Definition

The Income Evaluation Question is a question module devised by van Praag to estimate the individual welfare function of income (WFI).

Description

The Income Evaluation Question is a question module devised by van Praag and firstly used in van Praag (1971). It is the basic tool for analysis in the Leiden school tradition. For a recent survey, see van Praag and Ferrer-i-Carbonell (2004). The question runs as follows (Fig. 1):

Income Evaluation Question, Fig. 1 The Income Evaluation Question (IEQ) (mid-interval version)

Whether you feel an income is good or not so good depends on your personal life Circumstances and expectations.

In your case you would call your net household income:

a very low income if it would equal DM _____

a low income if it would equal DM _____

a still insufficient income if it would equal DM _____

a just sufficient income if it would equal DM _____

a good income if it would equal DM _____

a very good income if it would equal DM _____

Income Evaluation Question, Fig. 2 The Income Evaluation Question (interval version)

Given my present household circumstances, I would consider a monthly household income

<i>An income below</i>	<i>\$???</i>	<i>as a very bad income</i>
<i>An income</i>	<i>between \$????</i>	<i>and \$??? as a bad income</i>
<i>An income</i>	<i>between \$????</i>	<i>and \$??? as an insufficient income</i>
<i>An income</i>	<i>between \$????</i>	<i>and \$??? as a sufficient income</i>
<i>An income</i>	<i>between \$????</i>	<i>and \$??? as a good income</i>
<i>An income</i>	<i>above \$????</i>	<i>as a very good income</i>

There are several wordings of this question. First, the number of levels has varied between five and nine. When it was first posed in a Belgian survey (van Praag (1971)), nine verbally described levels have been used. In Russian surveys (see Ferrer-i-Carbonell and Van Praag (2001)), five levels have been used. Second, in the earliest versions (1971), the question was formulated as (Fig. 2).

When introducing this type of question, which requires more from a respondent than the usual income satisfaction Cantril question, survey agencies predicted that the response ratio would be very bad and that, if there would be a response, the respondents would not take this question seriously. It appeared in practice that those questions have a lower response than usual questions but not dramatically so. It may also be that the response is incomplete, but the question may still be used if at least *three* levels are filled in. Moreover, the amounts should be ordered in the sense that a good income requires a higher amount than a bad income. Finally, the response

is considered to be unrealistic if a *very bad* income is much higher than the respondent's current income or a *very good* income is much less than current income. Such cases appear to represent only a small percentage of the response. Mainly, those types of responses are rejected for further analysis. Since 1971, the question has been posed in many surveys all over the world.

Originally, the question was inspired by van Praag's hypothesis that income is evaluated by individuals on a bounded scale, say between 0 and 1 or between 0 and 10, and that this question would provide empirical information on the evaluation function, which was called the individual welfare function of income (WFI). This function was treated as a cardinal utility of income function. Later on, van Praag and van der Sar (1988) demonstrated that the IEQ contains also information when no cardinal utility function is assumed behind. We follow their analysis.

Let the answers be denoted by c_1, \dots, c_6 for a six-level question. Then it is intuitively obvious

that rich respondents will associate a higher income amount with each satisfaction level than poor respondents. More precisely, we may assume that each response c_i or its logarithm is a function of own income, family size, and other variables of interest, $c_i = f(y_n, x_n)$, where y_n stands for the respondent n 's income and x_n stands for other relevant variables (see van Praag and van der Sar (1988)). If that is true, this will also hold for the average of $\log(c_i)$, which is denoted by μ . A major part of Leiden work has been devoted to the analysis of this parameter. It has been shown that a relation like $c_i = \beta_1 \ln(fs) + \beta_2 \ln(y) + \beta_{0,i}$ gives a rather satisfactory first explanation of the responses c_1, \dots, c_6 . Here, $\beta_{0,i}$ is a constant intercept that differs per satisfaction level i . If we interpret the responses c_1, \dots, c_6 as *norms* for what the respondent considers to be a *bad* income, a *good* income, and so on, then we see that those norms depend on the personal situation of the respondent. Hence, these norms are *individual norms*. The coefficient β_2 is called the ► preference drift rate.

A traditional estimate of the equation is $c_i = 0.10 \ln(fs) + 0.60 \ln(y) + \beta_{0,i}$. However, for various countries, somewhat different estimates have been found.

The same question mode can be used to find individual norms for other concepts. For instance, what is *old* and what is *young*, or how many years stands for *much education* and how many years for *little education*? See Van Praag, Dubnoff, and van der Sar (1988).

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Income Inequality Measurement

► Income Distribution

Income Influence on Satisfaction/Happiness

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Synonyms

Gross domestic product (GDP) and happiness; Well-being, subjective

Definition

Various definitions of satisfaction and happiness have been proposed in the literature. In the widely accepted model by Diener (1984), happiness is often equated with the broad construct of ► subjective well-being (SWB) that is composed of cognitive components (e.g., ► life satisfaction, financial satisfaction) and affective components (e.g., positive and negative affect such as feeling sad or being in a good mood). In this entry, the term “happiness” will be used to refer to SWB in general, whereas the term “satisfaction” will be used for the cognitive components of SWB exclusively.

Studies on the influence of income on satisfaction/happiness have been conducted on the individual level as well as on the national level. On the individual level, income is typically defined as the monthly or annual net household income, but some studies also examined alternative indicators of income such as hourly wage,

household expenditures, or wealth in a broader sense. Common indicators for income in studies on the national level are the gross domestic product (GDP) or the gross national product (GNP).

Description

The relation between income and happiness has been of interest in various disciplines such as economics and psychology and has been examined in numerous empirical studies (for reviews, see Biswas-Diener, 2008; Diener & Biswas-Diener, 2002). This section begins with the most common theories on income and happiness, followed by a review of important empirical evidence.

Theories on Income and Happiness

Economists and psychologists used to have very different assumptions about whether and why income influences happiness: In the classic economic theory, the influence of income on utility (the preferred term for happiness in economics) is almost self-evident because money allows people to consume more goods which should directly increase their happiness (for a critical introduction, see Frey & Stutzer, 2001). A similar idea can be found in ► **Maslow's hierarchy of needs**: He proposed that basic needs such as food, warmth, or housing need to be fulfilled before people can strive for higher goals linked to self-actualization. In modern societies, money is clearly necessary to fulfill these basic needs, but it is less helpful to fulfill higher needs. Hence, this theory predicts a nonlinear effect of income on happiness that is strong on low-income levels and diminishes with increasing income.

According to classic psychological theories of well-being (e.g., ► **set-point theory**), in contrast, happiness is predominantly determined by dispositional traits, and changes in life circumstances (e.g., changes in income) should have no long-term effects on well-being. Several explanations of why people adapt to income changes have been proposed. According to homeostatic models of SWB (Cummins, 2000), the level of momentary SWB fluctuates around a stable set point.

Income changes might lead to short-term changes in the momentary level of SWB, but due to its homeostatic nature, the level of SWB inevitably returns to its set point. According to an alternative explanation, it is not the absolute amount of income that ultimately affects SWB, but rather, the level of income is judged against a relative standard such as the average income of people with a similar socioeconomic status and a similar profession (Clark, Frijters, & Shields, 2008). Whether income has a positive effect on SWB depends on the outcome of these social comparisons.

In sum, these theories come to quite different conclusions about the existence and the nature of the association between income and happiness. As we will see next, all of them have received at least partial empirical support.

Levels of Analysis

Researchers have examined the association between income and happiness/satisfaction on the national level of analysis as well as on the individual level of analysis. Within each of these levels, we can further distinguish between analyses of cross-sectional data focusing on differences in income and happiness *between* nations or individuals and analyses of longitudinal data focusing on simultaneous changes in income and happiness *within* nations or individuals. In the following section, we will review important research findings on each of these levels of analysis. It is important to understand that effects found on one level of analysis do not necessarily replicate on other levels. As we will see below, this is also true for research on income and happiness/satisfaction.

Income and Happiness in Nations

Cross-national studies usually find that citizens of wealthier nations are significantly happier than citizens of less wealthy nations. This correlation between national income and national happiness is curvilinear in the sense that it is particularly strong among less wealthy nations (e.g., Inglehart & Klingemann, 2000). However, this strong association between income and happiness is unique to the comparison of different

nations at a given point of time and can usually not be replicated on other levels of analysis. For instance, in one of the classic studies in this field of research, Easterlin (1974) found that economic growth was not associated with any changes in average happiness levels within nations (cf. ► [Easterlin paradox](#)). Furthermore, significant differences between nations do not imply significant differences between individuals within a nation (see next section).

Income and Happiness in Individuals

Similar to the cross-national studies, cross-sectional studies on the individual level typically find a positive correlation between income and happiness, that is, people with higher incomes tend to be happier. Also, the association tends to be nonlinear, with a stronger correlation found for low-income levels and a much weaker correlation for high-income levels. However, this correlation is much weaker than the one found on the national level: In their meta-analysis, Howell and Howell (2008) report an average correlation between economic status and SWB of $r = .28$ in low-developing countries and $r = .10$ in high-developing countries.

Cross-sectional correlations can advance our knowledge in only limited ways, for two reasons. First, the size of these correlation coefficients is often interpreted with respect to standards developed in other research contexts. According to the conventions proposed by Cohen (1988), a correlation coefficient of $r = .20$ qualifies as a weak correlation. This effect seems even smaller if the correlation coefficient is transformed into a determination coefficient: A correlation of .20 indicates that income “only” explains 4 % of the total variance in happiness. In fact, this way of interpreting correlations is one of the reasons why many researchers devalued the effects of income on happiness. However, as demonstrated by Lucas and Schimmack (2009), this supposedly negligible correlation translates into significant mean-level differences in happiness between poor and rich individuals. Hence, correlation coefficients tend

to obscure the practical significance of the relation of two variables.

Second, cross-sectional studies do not allow any inferences about the causal direction. A causal effect of income on happiness would imply that changes in income lead to changes in happiness. Longitudinal studies on income and happiness are still relatively rare and do not provide a clear picture. One longitudinal study found that lottery winners report significant increases in happiness in the following years (Gardner & Oswald, 2007). Lottery wins, however, are rare and do not represent the small to moderate fluctuations in income that are experienced by the majority of the population. In fact, longitudinal studies of less specific samples (e.g., Marks & Fleming, 1999) tend to find weak or even nonsignificant effects of income on happiness. Some longitudinal studies even suggest that the causal effect might be bidirectional: In these studies, earlier happiness predicted later income. Finally, it has been suggested that the relation between income and happiness could be explained by stable dispositional or environmental third variables (Luhmann, Schimmack, & Eid, 2011).

Mediators and Moderators

In the past years, researchers have increasingly focused on identifying mediators and moderators of the relationship between income and happiness. A number of studies now suggest that money can indeed increase happiness if it is spent wisely: Experiential spending (e.g., going to a restaurant, going on vacation) has longer-lasting effects on happiness than material spending (e.g., buying a new car) (Carter & Gilovich, 2010). Another line of research shows that how much people strive for higher incomes and how they spend their money is affected by their goals and values. Although money can buy happiness if spent the right way, having purely material goals and values seems to be detrimental to happiness (Kasser, Ryan, Couchman, & Sheldon, 2004). Finally, recent findings indicate that income might have stronger effects on cognitive

well-being than on affective well-being (Diener, Ng, Harter, & Arora, 2010).

Conclusion

This entry has shown that although income and happiness are positively correlated both within and across nations, the underlying processes that drive this association are far from simple and not yet fully understood. Therefore, researchers should focus on the boundary conditions of the effect of income on happiness by answering for whom, under which circumstances, when, and how long income can affect happiness.

Cross-References

- [Affective Component of Happiness](#)
- [Cross-National Comparison\(s\)](#)
- [Easterlin Paradox](#)
- [GDP Growth](#)
- [Gross Domestic Product \(GDP\) and Happiness](#)
- [Gross National Product \(GNP\)](#)
- [Household Expenditure](#)
- [Household Income and Wealth](#)
- [Life Satisfaction](#)
- [Maslow's Hierarchy of Needs](#)

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Income Poverty

- [Low Income](#)

Income Redistribution

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Synonyms

Redistribution of economic resources; Redistribution of income; Redistributive policies

Definition

Individuals, families, households, or other population groups typically have different capacities to generate economic resources including income and wealth. Income redistribution is the practice of sharing income within a jurisdiction so that inequality in income distribution can be lowered and with it disparities in people's living standard or quality of life can be reduced. Public policies such as progressive taxation and welfare state and social protection programs are the tools used to redistribute income within countries, regions, states, or provinces. Primarily centered on reducing economic inequality and containing related social problems such as crime, intergroup tensions, and sociopolitical unrest, income redistribution is also used to achieve other outcomes including fostering economic growth and bolstering political patronage. Although income redistribution is typically used in the context of within jurisdiction or intergroup transfer of income at a specific point in time, this can also take place over time and across generations especially when borrowed income is used to finance redistributive policies.

Description

Historical Background

While specific practices have changed over time, the basic concept of income redistribution is as

old as the civilization itself. In 2000 BC, for example, Hammurabi of Babylon mandated the protection of widows and orphans. Later, Greeks and Romans instituted pensions for the crippled, grain distribution for the poor, and custodial care for orphans, whereas various guilds provided food and lodging to the urban poor in medieval Europe (Trattner, 1999).

The world's major religions elaborated on the moral justification for income redistribution and established rules and mechanisms to make such redistributions happen. The Jewish tradition, for example, asserted it to be the duty of the wealthy to give to those in need and the right of the needy to receive support, whereas Christianity and Islam continued such traditions in their own practices of "tithing" and "zakat" (Trattner, 1999).

Income Redistribution and the State

Throughout modern history, income redistribution has been seen within the purview of the state. The English Poor Law of 1601 recognized that poverty could be a consequence of economic misfortunes beyond one's control, establishing a strong precedent that the state has the responsibility to take care of people in need. Implemented throughout England, this law served as the paradigm for income redistribution across Europe and later in North America and around the world (Trattner, 1999).

The idea of states using different redistributive tools to reduce economic inequality and improve living standards is seen to be increasingly relevant as the free market capitalist society rewards entrepreneurship, thus increasing economic inequality. As capitalism flourished and states grew in power, however, Smith (2002) and Mill (2004) argued for a limited role of the state especially in preventing direct physical harm or damage and against redistribution of profits realized by wealthy capitalists since they are viewed as insurance against potential business risks. This philosophical debate regarding the role of the state and income redistribution has endured throughout the modern history. Conservative thinkers such as Friedman (1962) and Nozick (1974) argued

that income redistribution would be undesirable as it inhibits economic growth, fosters dependence, and is incompatible with the notions of liberty. This neoclassical perspective views economic incentives as the bedrock of economic growth with economic redistribution undermining such incentives and causing dependence. Many thinkers on the left including Owen (1973) and Marx (1977) differentiated between the “ability” and “need” with the latter seen as more critical when population grows, thus needing greater income redistribution to make sure that the living standard of the masses does not fall behind. Rawls (1971) distributive justice views income and wealth as important primary goods which need to be distributed equally to maintain a fair and well-ordered society. Keynesian economics gave credence to this redistributive approach viewing the success of the market depended on the purchasing power of the ordinary people stimulating market demands (Keynes, 1936). These views have been even more persuasive since studies have found economic inequality to lower, not increase, economic growth through its effects on stability, political institutions, and human capital (Easterly, 2007; Perotti, 1996).

Still others have asserted it is moot to debate the merits or ill effects of income redistribution because globalization will dismantle welfare states worldwide as governments lose power relative to footloose capital. In fact, public social expenditures, most of which depend on some form of income redistribution, increased for most industrialized nations during the past several decades (OECD, 2010). Most developing countries, however, saw slightly decreased welfare spending during this time especially because of the growing privatization and austerity measures demanded by structural adjustment and lending programs (Rudra, 2008).

Given that the idea of free society necessitates economic and political freedom simultaneously, a more relevant question has been whether or not income redistribution is an essential ingredient of a free society. It is no coincidence that some of the most egalitarian societies in Latin America and Africa happen to have less than

fully functioning democratic systems of governance. While a large part of economic inequality is contextual having to do with history and culture (Wagle, 2009), democratically elected governments are found to be more responsive to their electorates, showing greater social policy commitments to a majority of the voters who can otherwise instigate sociopolitical unrest and instability (Muller, 1988; Przeworski, Alvarez, Cheilbub, & Limongi, 1996). This sociopolitical imperative for having mechanisms to redistribute incomes goes beyond what would be expected in free market capitalism since political freedom does not directly equate economic freedom and noninterference from the state.

Policies on Income Redistribution

Theoretical debates aside, most if not all countries, engage in some form of income redistribution. While the form and extent of redistribution varies, countries use welfare state policies with various social insurance and assistance programs, combined with different income tax structures, to finance them. Social insurance programs like social security and government-run and/or government-financed healthcare programs are universally provided, whereas social assistance programs including food stamps and housing subsidies typically require means tests so that the benefits are targeted more specifically. But the idea is to provide broader social protection and make sure that no one lacks the income needed to maintain an acceptable living standard.

The costs of administering these programs can be quite large depending on the specific labor market situations and policy structures such as unemployment, minimum wages, wage disparity, and labor market discrimination. In the United States, which has one of the most stringent welfare states and especially public assistance programs among the high-income countries, for example, around one in six Americans receive social assistance, including food stamps, supplemental security income, and other welfare supports (United States Department of Health and Human Services [US DHHS], 2008). Many more receive other forms of assistance especially in Medicaid. By the very nature of public funding,

moreover, participation in social insurance programs such as social security and Medicare is much wider.

Taxes that are used to finance these welfare state policy programs are even more important since progressivity of taxes indicates the degree of income redistribution in a country. To take the United States tax structure as an example, the federal income tax rates vary from some small but negative percent (in case of those qualifying for tax credits) to 35 %, with individuals with higher incomes paying taxes at significantly higher rates. While actual progressivity of these taxes is lower than typically assumed since marginal tax rates are noncumulative and since higher income people are capable of finding ways to utilize loopholes, income, as well as sales, real estate, and other forms of taxes, represents the most comprehensive way income redistribution is administered.

Income Redistribution and Quality of Life

If income redistribution is needed to reduce economic inequality, this measure is justified in terms of rectifying myriad social problems that are associated with income inequality. High inequality is a major concern for public and social policies because those with low incomes are typically unable to maintain even a minimally acceptable living standard. Cross-nationally, countries with greater inequality have tended to experience and tolerate greater poverty especially when poverty thresholds are defined in relative terms, depending directly on 50 or 60 % of the median income (Wagle, 2010). Whereas economic growth is underscored as a vehicle to reduce poverty (Dollar & Kraay, 2001), growth with redistribution is found to reduce poverty more effectively (Dagdeviren, Van Der Hoeven, & Weeks, 2002). Research has also shown that inequality can increase violence, illicit drug use, and psychological problems such as anxiety, issues that have broader social consequences. Life expectancy declines with increased inequality, as does trust in civil society, and even indicators of happiness are related, with more equitable societies exhibiting more contentment overall (Deaton, 2003; Wilkinson & Pickett, 2009).

But does income redistribution help address these quality of life problems? At a more fundamental level, income redistribution helps the poor and other vulnerable groups with incomes which they direly need. This help can be instrumental at improving the economic as well as psychological well-being of the needy. While accurate measurement of the redistributive impacts of social policies is difficult in a cross-national context due to large measurement errors, studies especially of high-income countries have shown that social policies have significant effects on increasing incomes of poor and other vulnerable sections of the population and reducing poverty (Brady, 2009). It is important to recognize that contexts matter with some countries witnessing greater redistributive impacts of social policies than others (Behrendt, 2000). Also, redistribution is more successful in nations where inequality is considerably high and the poor are not far below the poverty line. In nations where virtually everyone is poor or near poor, there simply may not be a shift of resources large enough to make a substantial impact on the living standard of the poor.

Cross-References

- [Economic Well-being](#)
- [Happiness](#)
- [Low Income](#)
- [Poverty](#)
- [Quality of Life](#)
- [Social Policy](#)
- [Social Welfare](#)

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Income, Motivation, and Life Satisfaction

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Synonyms

Economic well-being

Definition

Individuals place different importance to material goods, and thus to income. For this reason, we should expect the effect of income on ► life satisfaction to be different for individuals with different motivations in life. Psychologists suggest that different psychological processes may condition the impact of objective circumstances and life events on ► subjective well-being (Lyubomirsky, 2001). The effect on life satisfaction of objective circumstances, like income levels, could therefore be moderated by psychological processes such as the attitude of individuals toward material well-being. Different goals and intended outcomes will then condition individual's perceptions of well-being, with intrinsic motivations being crucial in attaining greater levels of satisfaction with life and in determining the impact of income on life satisfaction.

Description

The study of the effect of income on ► happiness traces back to the work of Easterlin (1974), who found empirical evidence on two apparently contradicting facts. On the one hand, individuals

with higher levels of income seem to enjoy, on average, higher levels of subjective well-being. On the other hand, levels of well-being do not seem to increase as a society becomes richer. Many papers have since then tried to explain the so-called “► [Easterlin paradox](#),” with most of the explanations proposed to solve this paradox pointing to the role of relative income through social comparisons or rising income aspirations and to income adaptation (an extensive review of different explanations to the “Easterlin paradox” can be found in Clark, Frijters, & Shields, 2008). Taking these facts into account, recent research generally finds a positive relationship between income and subjective well-being (Stevenson & Wolfers, 2008).

Different variables may however weaken or reinforce the association between income or material conditions and life satisfaction. Much of the economic literature on life satisfaction focuses on the objective conditions that lead individuals to perceive greater well-being, implicitly assuming that those enjoying better material conditions will report higher levels of satisfaction with life. Psychology however suggests that several variables act as ► [moderators](#) in the relationship between objective conditions and subjective well-being. In particular, numerous studies show that multiple cognitive and motivational processes act as moderators on subjective well-being (Malka & Chatman, 2003). The economic literature has for the most part ignored the use of such moderators. Most of the economic analyses that deal with individual heterogeneity in the relationship between income and well-being have paid little attention to the role that variables related to individual values or motivations can play as moderators on subjective well-being. As an exception, we find the work by Rojas (2007), which uses the conceptual-referent theory of happiness to analyze the relationship between income and subjective well-being. Rojas considers different conceptual referents for happiness, differentiating individuals with an inner orientation, as opposed to an outer orientation, and arguing that heterogeneity in beliefs about what a happy life is extends to the relationship between income and happiness.

Intrinsic and Extrinsic Motivation

One of the potential individual moderators of the relationship between well-being and income is individual motivation, which can be extrinsic or intrinsic. Deci and Vansteenkiste (2004) define a behavior for which individuals have an extrinsic motivation as one that is instrumental to some separable consequences, rather than being satisfying in its own right. This is the only type of motivation usually considered in economic analyses. Intrinsic motivation, on the contrary, refers to the satisfaction that an individual obtains directly from the activity itself and not from the outcome that can be obtained through the activity. This concept is related to the idea of procedural utility which refers to the utility or well-being that people obtain from processes as opposed to the utility that they gain from outcomes (Benz, 2005; Frey & Stutzer, 2005).

The literature on extrinsic and intrinsic motivation has gained new insights from the “► [self-determination theory](#),” first proposed by Deci and Ryan (1985, 2000). These authors point out the importance of intrinsic motivation to achieve individual well-being through the satisfaction of three psychological needs: autonomy, ► [competence](#), and social relatedness.

Income, Motivation, and Life Satisfaction

Studying the relationship between income and life satisfaction, Salinas-Jiménez, Artés, and Salinas-Jiménez (2010) focus on individual heterogeneity in motivations, analyzing whether this heterogeneity affects the relationship between income and life satisfaction. In particular, they examine the following hypotheses:

- Hypothesis 1: different types of motivation may condition life satisfaction.
- Hypothesis 2: motivation may act as a moderator in the relationship between income and life satisfaction (i.e., individual heterogeneity in motivations may condition the way in which income affects life satisfaction).
- Hypothesis 3: the incidence of motivation on life satisfaction may depend on the level of income of the individuals (i.e., income differences may condition the way in which

different types of motivation affect life satisfaction).

They test these hypotheses using data from the 2005–2006 wave of the World Values Survey (WVS), which covers information on around 10,800 individuals from ten developed countries. Their estimating strategy consists on regressing individual self-reported life satisfaction on income, a group of variables that captures intrinsic and extrinsic motivations, and a standard set of economic and socio-demographic variables such as age, gender, ► [health](#), ► [education](#), employment, marital status, or ► [religion](#). Income enters the regression as a vector of three categorical variables that are constructed using information on the income decile that the individual belongs to. The low-income variable groups belong to deciles 1–3, the middle-income deciles 4–7, and the high-income class, the remaining deciles. To measure individual motivations, the authors classify individuals into three groups: those that show “intrinsic motivations,” those that show “extrinsic motivations,” and those that appear to have “mixed motivations.” Each category is built using the responses of individuals to two questions contained in the WVS that ask the individuals about what they look for in their jobs in first place and as the second option. The possible answers to these questions are: (1) a “good income,” (2) a “safe job,” (3) “working with people you like,” and (4) doing a job that gives you a “feeling of accomplishment.” These responses give an idea of the interests or motivations of the individuals and are used to proxy for individual motivations. The first two responses (income and security) may be thought of as being closer to extrinsic motivation while the last two ones (working with people you like and feeling of accomplishment) are more related to intrinsic motivation. Individuals are classified as exhibiting extrinsic motivation if the main two things that they look for in their job are “a good income” and “a safe job.” On the other hand, they are classified as showing intrinsic motivation if they choose as the two most important things for them “working with people you like” and “feeling of accomplishment.” Individuals that choose an “extrinsic” answer in the

first option and an “intrinsic” one in the second option (i.e., income as first option and “feeling of accomplishment” in second option), or the other way around, are considered as not having a well-defined orientation (either extrinsic or intrinsic) in motivation.

Looking at the first hypothesis, the results suggest that extrinsic motivations are associated with lower life satisfaction with life whereas intrinsically motivated individuals tend to enjoy greater satisfaction with life. Moreover, the results also suggest that the variables related to basic psychological needs such as experiencing feelings of accomplishment or having good relationships with others are found to be those that contribute the most to life satisfaction.

The results also support the second hypothesis. The impact of income on life satisfaction significantly differs across individuals with different motivations. For extrinsically motivated individuals and for individuals with mixed motivations, an increase in income is positively and significantly associated with life satisfaction while for intrinsically motivated individuals, no significant relationship is found.

Finally, the third hypothesis is confirmed by two results. On the one hand, the negative effect of extrinsic motivation on life satisfaction is found to be independent of the income level. On the other hand, intrinsic motivation is positively and significantly associated with life satisfaction for individuals in the low- and middle-income groups but appears to be nonsignificant for individuals in the high-income group.

Overall, these results suggest that putting a greater emphasis in intrinsic motivations as opposed to extrinsic ones leads individuals to enjoy greater levels of satisfaction with life, regardless of their level of income, with the positive effect of intrinsic motivation being particularly significant for people in the low-income class. When the various attitudes or goals are considered separately, a gradient on extrinsic and intrinsic motivations appears. Within extrinsic motivations, a greater emphasis on obtaining a good income seems to yield less life satisfaction than focusing on job security. Similarly, within intrinsic motivations, satisfaction with life is

greater for individuals that place a greater importance to obtaining a feeling of accomplishment with their job compared to those that place more importance to working with people they like. In sum, not only the distinction between extrinsic and intrinsic motivation is significant to explain differences in subjective well-being but also the distinction within extrinsic and within intrinsic motivation of different types of ► preferences, with different goals and attended outcomes conditioning the individual perceptions of well-being.

Summary

Although the distinction between extrinsic and intrinsic motivation may sometimes be blurred, once different types of motivation may emerge between those extreme types, this distinction appears to be useful to orientate research on motivation and on life satisfaction. Besides, when studying the relationship between income and life satisfaction, it is found that individuals' motivations may moderate this relationship, pointing therefore to the need of taking account of individual heterogeneity in preferences, values, and motivations to better assess the relationship between income and satisfaction with life.

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Incompleter

► School Dropout

Inconsistency Approach to Identifying IER

► Survey Responses with Insufficient Effort

Indebtedness

► Debt

Independence and Interdependence Dimensions of Self-Construal

► Independent/Interdependent Self

Independent Living Support

► Care, Residential

Independent/Interdependent Self

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Synonyms

Agentic versus communal needs; Collective self; Dialogic self; Idiocentrism-individual focused and allocentrism-other focused self-construal; Independence and interdependence dimensions of self-construal; Multifarious and dynamic self; Private, public, and collective self-construal; Relational self; Role-, relationship-, or group-oriented selves; Self-concept; Self-construal; Self-culture fit; Self-definition; Self-representation; Social self; Spiritual self; Stable and unitary self; Working self

Definition

Self: The “I” as experienced by an individual.

Self-concept: The self as known to the individual or cognitive representation of the individual. In modern psychology the notion of the self has replaced earlier conceptions of the ego or the soul.

Self-construal: Refers to the self-concept constructed by the individual; the emphasis here is at the active process of construction and that the meaning of the self is constructed rather than given.

Independent self or interdependent self-construal: The self that is defined without information concerning others is called the independent self; the self that is defined by taking others into the definition of self is called the interdependent self.

Description

Quality of life

► *Quality of life* (QOL) refers to the evaluation of life (OECD, 2011); QOL has different philosophical, political, and health-related definitions. Furthermore, QOL has been defined in both objective components and subjective components (Diener & Suh, 2000).

QOL should not be confused with such concepts as wealth (Oswald, 1997) and ► *consumption* (Oswald, 1999); it is a much deeper and broader construct that places emphasis on the subjective, utilitarian values of tangible goods and conditions rather than the goods and infrastructure themselves.

QOL is therefore also subjectively defined (Cummins, 1999). As such, it is not only the availability of resources alone that constitutes QOL but also how the resources are evaluated.

Quality of life at the individual level is measured by such psychological constructs as ► *subjective well-being (SWB)* (Diener, 1984), individual's perceived general satisfaction with life.

The subjective nature of the quality of life has been gaining centrality in the quality of life studies (Argyle, 1996). This aspect of quality of life measures makes the concept of *self* relevant to QOL.

Subjective Well-Being, Happiness, and Positive Functions

Being one of the pillars of the revived ► *positive psychology* movement, SWB is often used interchangeably with ► *happiness*. In the context of scientific psychological investigation, the construct of happiness roughly includes most of the positive or desirable affective states.

Contemporary literature on the concept of well-being has moved beyond ► *positive affect* and cognitions to include positive adaptive functions (Valliant, 2000) and growth factors – such as autonomy, mastery, and ► *competence* (Ryan & Deci, 2001). This makes the concept of QOL to include perceived quality of being in different life domains and the assessment of QOL either domain specific or multidimensional to include different domains of life.

Therefore, QOL is defined and measured as the subjective perception and evaluation of life's conditions across wider diversity of life domains. Given this subjective nature of QOL assessment, psychological variables and processes that influence one's perception and evaluation would influence the reported QOL. Further, as the domains suggest, QOL is a broader construct than individual happiness; it includes happiness as well as positive adaptive functions for growth and development in the context of the community.

Culture and Quality of Life Assessment

The content of QOL is constructed differently in different cultures informed by traditions, world views, and ► meaning of life concepts of these cultures (Diener & Suh, 2000). Diener and colleagues (Diener, Emmons, Larsen, & Griffith, 1985) proposed that a universal/standardized index of quality of life can be constructed by simply asking whether people are satisfied with their life. Cultures may differ in terms of specific conditions that lead to satisfaction, but the reported global satisfaction should be a cross-culturally valid indicator for comparison. With this argument, how people of different cultures is a subjective evaluation of whether their life is satisfactory or not becomes the key factor of QOL in cross-cultural comparison (Diener & Suh, 2000).

Culture influences one's cognition, motivations, and emotions; this influence has been proposed to go through the mediating process of self-construal (Markus & Kitayama, 1991). In different cultural contexts, the differences in reported quality of life could be influenced by the culturally conditioned differences in the meaning of the self. The current prevailing belief in psychology is that culture and the self constitute each other (Baumeister, 1987; Markus & Kitayama, 1991; Shweder & Bourne, 1991; Triandis, 1989). The self, however it is constructed and organized, serves as the mediator or the basic framework, whereby the external stimuli are interpreted, internal motivations and emotions are regulated, and decisions of behaviors are made (Markus & Kitayama, 1991; Triandis, 1990). This central

function of self-construal makes it the key stone of SWB and, in turn, of quality of life assessment (Chang, Bin Osman, Tong, & Tan, 2011; Cross, Bacon, & Morris, 2000; Kwan, Bond, & Singelis, 1997).

The Concept of Self

Self-construal or self-concept is a term used to describe how the individual sees the self. The individual is actively constructing the meaning of herself from the information she sees in her-self-self-reflection (James, 1890) and from the interaction with others (Cooley, 1902). Some scholars consider self-construal as a product of self-consciousness, following Descartes' notion that says, "I think; therefore I am" (Averill, 1994). The final product, self-construal, includes not only the raw information that is afforded and attended to by the individual but also the active construction process of the individual.

James (1890, pp. 292–305) observed that the resulting cognitive product-self-concept is multi-faceted. Specifically, James mentioned that the self can at least have two aspects: the *spiritual self* and the *social self*. The spiritual self is the private, inner, and personal understanding of what the self is or might be; the social self involves cognitive representations of the self that takes others into consideration. Since an individual is not an isolated being, she is likely to have multiple social others with whom she interacts with differing frequencies and in a diversity of contexts (see, for instance, Mead, 1934). With reference to these multiple and varied ► social interactions, James (1890) has famously said: "There are as many social selves as there are others who know him (her)" (pp. 293). Therefore, the social self is deemed to be multiple or multifarious (Baumeister, 1987; Greenwald & Pratkanis, 1984). Later scholars proposed that the social self can be identified empirically (Kuhn & McPartland, 1954) by such methods as the Twenty Statements Test (TST). Some psychologists further noted that the individual self seldom acts alone, and they proposed to use the self-with-other representation as a unit of analysis in self-concept research; the individual self and the self-with-others schema could be

said to be the predecessors of the independent and interdependent self-construal (Markus & Kitayama, 1991).

From this early beginning, the construct of social self has proliferated. Several schools of thought emerged to give rise to different proposed structures of the social self, for instance, the private, public, and collective self-framework (Greenwald & Pratkanis, 1984). These different aspects of the self and social selves were found to be differentially prevalent in different social contexts (Triandis, 1990) and are evoked by different social-cultural cues Trafimow, Triandis, & Goto, 1991). The relevant social cues that would “prime” different aspects of the self are cultural symbols (Hong, Morris, Chiu, & Bebet-Martinez, 2000) and social structures (see, for instance, Geertz, 1973; Markus & Kitayama, 1991; Triandis, 1990) among others. Individuals differ in their preference in terms of either sampling of their internal or external information (Snyder, 1994); these differences give rise to the differences in salience of the private self, collective self, or public self (Triandis, 1989).

Along the same line of the dimensional approach, Markus and Kitayama’s review proposed the independence and interdependence dimensions of self-construal (Markus & Kitayama, 1991). The introduction of the self in relation to others, the social self, and its emphasis on social connectedness has linked the study of self-construal to cultural differences in values, social structures, ► norms, and expectations concerning the self and other relationships (Geertz, 1973; Markus & Kitayama, 1991; Shweder & Bourne, 1984; Triandis, 1990). These studies thus ushered in the proliferating literature on culture, the self, and their consequences on emotion, cognition, and the different behavioral consequences attributable to the different selves.

In reference to the cultural characteristics that differentially afford the social cues for self-construction, Triandis (1990) and Markus and Kitayama (1991) provided the most comprehensive and authoritative theoretical frameworks that firmly established the linkage between dimensions of culture and dimensions of self.

A culture’s extent to which the interdependence between members is emphasized or experienced frequently provides the condition/opportunity that the individual will construct self-construals that are more interdependent in nature. Independent and interdependent self-construals have thus become the most dominant theoretical framework used as the explanatory construct for a variety of emotional, behavioral, and motivational outcomes of ► cross-cultural comparison.

Independence and interdependence or idiocentrism-individual-focused and allocentrism-other-focused (Triandis, 1990) self-construals are suggested to be the mirror reflection of a culture’s emphasis on the collective or the individual: individualism and ► collectivism. Roughly speaking, cultures that value collectivism and are closely knit and complex tend to show a higher salience of reported interdependence of self, while cultures that value individualism and are loosely knit and less complex tend to show less salience of the interdependent self (Markus & Kitayama, 1991). The formal group included cultural communities such as the Chinese, the Japanese, and other East Asian countries, while the latter included North America and West European countries (Hofstede, 1980).

With the proliferation of self-related studies in the 1990s, more and more differentiated self-constructs have been proposed. Specifically, since an individual can belong to many different in-groups and is related to many different individuals with diverse types of interdependence, the interdependent self-construal in itself is multifaceted (Anderson & Chen, 2002; Brewer & Gardener, 1996). Among the diverse types of interdependent self are the concept of *relational self* (Anderson & Chen, 2002; Brewer & Gardener, 1996) and the *collective self* (Brewer & Gardener). Depending on who is the “other” that we are interdependent with (Brewer & Gardener), some others we take into our self are collectives or small groups that give rise to the concept of collective self (Brewer & Gardener; Cross et al., 2000), and some others that we take into consideration are others of significance to the individual that give rise to the relational self

(Anderson & Chen, 2002). Furthermore, the particular pattern of interdependence in the selfhood might be situation-, relationship-, and domain-specific (Chang & Lee, 2012) and gives rise to multiple role-, relationship-, or group-oriented selves. The different interdependent selves would shape one's cognition, regulate one's emotions and motivations, and influence one's behavioral decisions in different ways (Markus & Kitayama, 1991).

Other self and culture scholars have reviewed cultural variations of the self-construct from a holistic point of view (Geertz, 1973). Hsu (1981) and Roland (1988) compared the concept of self across major world civilizations, China, India, Japan, and North America (Hsu, 1981; Roland, 1988), converged on the theme that:

1. Culture's prevailing world views, values, and social structure afford the meanings and guide the construction of the self.
2. Compared to people of Western civilization heritage, the people of Asian civilization heritages constructed the self to include more and more complex social others.

From a related social-cultural perspective, Baumeister (1987) reviewed the construction of self across history in Western civilization and concluded that historically in Western civilization, the concept of an independent self is a modern construction that the self has historically been seen as an integral part of the social-political context in which the person is embedded. In other words, in Western civilizations, the self has most of the time been seen as interdependent. Though the term "interdependent self-construal" was not used to denote such conceptualization of self, philosophical and theoretical writings have implied that the self has always been seen as closely intertwined with others and that one's emotions, motivations, and behaviors are thus closely related to others.

In summary, the culture-self relationship has been found to be parallel to the differential emphasis on the collective or the individual. These different self-constructs actively influence how the individual sees her life and how she evaluates her life conditions. This makes the

investigation of self and other psychological variables, including SWB, critically related to the inquiry of QOL.

Dynamic Interactions Between Culture and Self

Great waves of migrations and the efficiency of transcultural communication have made the postmodern individuals exposed to local as well as international and globalized information (Giddens, 1991). The current understanding is that the self is multifaceted and multiphonic, regardless of the individual's cultural background (Hermans, 2001).

A concept of *working self* (Markus & Nurses, 1986) was introduced to denote the current-time functional self-construal out of the multifarious competing self-aspects. This working self might be a product of dialogues or dialogical processes between the different selves and "present time" demand of the situation (Hermans, 2001). The behavioral decisions made by the dialogic self are likened to a "committee decision" based on the internal dialogues between different self-construals and the "voices" (Hermans) or demands made by external situations.

The self is no longer seen as stable and unitary in the postmodern world (Giddens, 1991); it is multifarious and dynamic. While the dialogical scholars emphasize the internal dynamics of the self, the dynamic constructionists investigated the dynamic-activating influences of the environment, especially the social aspects of self via a process called dynamic constructivism (Hong, Morris, Chiu, & Benet-Martinez, 2000). The dynamic constructivism approach extends the culture-self relationship by introducing the element of situational activation and differential construal accessibility into the dynamic culture-self relationship. When probed with the cues that make reference to others, interdependent self is said to be more accessible, while being probed with individual cues, independent self is more accessible (Gardner, Gabriel, & Lee, 1999). In other words, independent and interdependent self is not only culturally related but is situation sensitive. Cultural differences

attributable to collectivism/individualism are seen as differences in attending to socially related cues or nonsocially related cues (Masuda & Nisbett, 2001).

The static independent and interdependent self-construal is no longer sufficient to address the issue of the culture-self-psychological processes. The dynamic, fluid variation of the self across time and situations makes the independent and interdependent self no longer static psychological constructs. Across time and across situations, the independent and different interdependent selves alternate with each other to be the *working self* (Markus & Nurses, 1986) at a given moment. In tasks that call for global and general evaluation of life conditions such as quality of life judgment, it is assumed that the chronically accessible self-construal would be the operating self to make the judgment.

Motives, Self, and QOL

Satisfaction of ► basic needs is considered a major source of SWB since the time of Freud. Satisfaction of basic survival needs would produce feelings of well-being; having the resources to satisfy the basic needs has been traditionally used as an indicator of QOL. Maslow (1954) proposed a hierarchy of human needs that entails differential priority for satisfaction. Self-construal is further seen as the regulating framework that regulates the multiple motivation-satisfaction processes (Markus & Kitayama, 1991) and produces different degrees of satisfaction across a variety of motives.

An influential theoretical framework of human needs is to view the dichotomized and seemingly paradoxical agentic versus communal needs of human nature (Bakan, 1966). In this framework, agency and communal refer to broad categories of human action tendencies. Agency refers to the individual acting alone and asserts influence on the environment. Communion refers to the individual acts as part of a larger collective. Agency manifests itself in isolation, ► alienation, and aloneness; communion manifests itself in contact, openness, and union. Agency manifests itself in the urge to

master; communion manifests itself in contractual cooperation (p. 15). Bakan argues that if societies or individuals are to be viable, “unmitigated agency” must be combined with “communion” (p. 15).

The agency and communion tendencies of human beings are related to the different categories of human motives (Ryan & Deci, 2000), mastery and relatedness, giving rise to different types SWB (Ryan & Deci, 2001) and QOL (Eckersley, 1999). Viewing human motives from this dichotomy, one can surmise that there could be different kinds of fulfillment or satisfaction. The “I” happiness derived from individual agentic needs, and the “we” happiness derived from communal needs for relatedness. It is hypothesized that the “I” happiness might be mediated by the independent self, while the “we” happiness might be mediated by the interdependent self-construal.

I Happiness and We Happiness: The Agentic and the Communal Quality of Life

Contemporary literature suggests major categories of factors that constitute life satisfaction. They are ► emotional well-being, ► social well-being, and positive functions (Keyes, 2005) leading toward not only away from illness but also continued growth and ► self-actualization (Jahoda, 1958; Keyes, 2005). Psychological factors, such as ► resilience, emotional intelligence, personal ► competence, sense of mastery, personal control, and autonomy, are emphasized in majority of literature on subjective and psychological well-being (for instance, Ryff, 1989). Most of these factors are individually based or agentic in nature. Conditions that lead to satisfaction of these individually oriented agentic motives would thus be judged by the independent self to offer QOL. Expressions of one’s unique attributes and the pursuit of one’s own goals and values are seen as ► self-actualization (Markus & Kitayama, 1991). In Maslow’s framework of the need for self-actualization, the self is defined as an autonomous, unitary, and stable entity that is separate and independent from others (Singelis, 1994, p. 581), in other words the independent

self-construal. From this theoretical framework, independent self-construal would lead to life satisfaction, and conditions that facilitate actualization of the independent self-construal could be evaluated as QOL.

At the culture level, in North America, collectivism was found to be negatively correlated with well-being, and individualism was found to positively predict well-being (Diener & Suh, 2000). On the surface, this finding would suggest that independent self-construal is related to positive well-being, while interdependent self-construal would predict negative well-being. A closer look at the research literature yielded exceptions to this rule: Bettencourt and Dorr (1997) found that collective self-esteem, related to the collective self (Cross & Madson, 1997), mediates the relationship between allocentrism and subjective well-being. It was also found that allocentrism provides beneficial effect to Afro-American students' SWB (Kermahan, Bettencourt, & Dorr, 2000; Oyserman, Coon, & Kmmelmeier, 2002).

These exceptional cases of the collectivism-self-well-being connections, notably Americans of African descent and ethnic minority groups in Europe (Verkuyten & Lay, 1998), imply that the relationship between self-construal and well-being is far more complex: Individualism does not always predict higher SWB or higher QOL. There are situations where collectivism predicts higher subjective well-being. Perhaps, individualism and collectivism predict different types of quality of life and through different mediating processes. The mutually constitutive relationship between culture dimensions and self-construal leads to the hypothesis that cultural values influence quality of life judgment through the mediating effects of self-construal, but they mediate different types of well-being and quality of life. That is, self-construal serves as the personal, cognitive mediator of the prevailing culture to make judgment of life's conditions. Internally, the self-construal regulates different basic motives and sets priorities for need satisfaction (Markus & Kitayama, 1991). Independent and interdependent self-construal each mediates a different culture-quality of life relationships, an independent QOL and an interdependent QOL.

To individuate, to be unique and to actualize the unique qualities of the individual, and to belong and relate to others are basic human motives (Bakan, 1966); dialectic as they are, individuality and relatedness are powerful motivating forces that guide ► [human development](#) (Guisinger & Blatt, 1994). Life conditions that facilitate the fulfillment of both types of motives would lead to life satisfaction. But the fulfillment of the two types of motives might follow different paths (Chang et al., 2011; Kwan et al., 1997; Yang, 2003).

The interdependent self-construal is "flexible and variable" (Singelis, 1994, p. 581) and emphasizes one's connectedness with others (Markus & Kitayama, 1991). The interdependent self has also been found to show marked sensitivity to situations and social context. For the interdependent self, the person's behavior, feelings, and thoughts are more contingent upon the feelings, thoughts, and behaviors of the social others with whom the self is connected (Markus & Kitayama, 1991). QOL judgment by the interdependent self is therefore far more complex and dynamic.

The need for mastery, sense of control, and growth toward competence are considered intrinsic motives whose fulfillment produces long-lasting satisfaction (Ryan & Deci, 2001). Conditions that facilitate the fulfillment of these agentic motivations would lead to positive quality of life evaluation in cultural communities where individualism prevails (Diener & Suh, 2000). The emphasis on communal values and collectivism places emphasis on the motives to relate (Guisinger & Blatt, 1994) and to belong (Baumeister & Leary, 1995; Verkuyten & Lay, 1998). Satisfaction of relatedness and belongingness (Kermahan et al., 2000) positively contributes to quality of life evaluation, even in countries where individualism seems to prevail (Oyserman et al., 2002). Literature suggests (see, for instance, Markus & Kitayama, 1991) that the construal of interdependent self serves as the mediating variable between the need for affiliation and life satisfaction, the path between communal needs and life satisfaction.

From the independent self-perspective, the individual makes decisions about her own life's

conditions, pursuing life goals that are independently identified and obtaining satisfactions from goal attainment of independent goals, while from the interdependent self-perspective, subjective well-being is obtained when the individual pursues the goal that fulfills normative expectations, identified with consultation and worked toward with significant others (Yang, 2003). In other words, the independent and the interdependent self-construal each serves as mediator between cultural dimensions and subjective well-being.

In terms of the QOL evaluation processes, where the cultures are relatively more interdependent, the SWB evaluations are more often influenced by the normative expectations and collective concerns in addition to individual's values, ► attitudes, and other personality characteristics.

Freedom of choice, intrinsic motivation, autonomy, and individual mastery have been found to be powerful human needs (Ryan & Deci, 2000). Conditions that provide the opportunity to fulfill these needs are high on quality of life measures. Personal control was found to better predict well-being in European Americans but not in Asian Americans (Iyengar & Lepper, 1999). On the other hand for Afro-Americans, high(er) collectivism which is related to higher interdependent self showed association between collectivism and subjective well-being (Oyserman et al., 2002).

Therefore, the cultural context determines which type of conditions leads to quality of life evaluation. In cultures where individualism is prevalent, independent self-esteem is related to higher psychological well-being, while in cultures where collectivism is prevalent, relationship quality predicts higher life satisfaction (Chang et al., 2011; Kwan et al., 1997). These results suggest the following possibilities:

1. Different self-construal is associated with different predictors of life satisfaction or quality of life.
2. Higher well-being is associated with a self-and-culture fit.

Across culturally, the relative emphasis differs between the two paths to well-being. Yang (2003) proposed a dichotomy of socially oriented

SWB and individually oriented SWB, whereby happiness can be achieved through either an independent path or interdependent path (Chang et al., 2011; Kwan et al., 1997). However, these two paths are not independent of each other. There might be cross-influences between the two paths. The effect of belongingness can sometimes influence such highly individualist psychological processes such as sense of control, ► choice, and mastery (Ryan & Deci, 2001) and the individual ► self-esteem (Chang et al., 2011) to produce well-being: Iyengar and Lepper (1999) found that for American children of European descent, satisfying choices were the ones made by the individual self; however, for American children of Asian descent, choices made by close intimate others such as the mother afford as much satisfaction. These results were interpreted to mean that choice behavior in cultures where the interdependent self is more prevalent, a choice that is made interdependently with significant others, gives rise to satisfaction. QOL can thus be derived from having trusted intimate relationships, sense of belonging, and sense of mastery or agency through cooperative actions with trusted others and mediated by the interdependent self-construal.

This great proliferation of studies on culture, self, and SWB/QOL leads to the likely convergence of findings and various theoretical explorations that:

1. Self-construal mediates the influence of culture and internal psychological processes and external expressions.
2. Within this framework, QOL evaluation – subjective well-being – is mediated by the culturally conditioned construal of self via different paths.
3. These paths lead to the same final goal – subjective well-being (Chang et al., 2011; Kwan et al., 1997). The mosaic life conditions are mediated by different self-construal-mediated paths to inform the global evaluation of life.
4. QOL of life is multifaceted and should be therefore assessed with multifaceted indicators, notably the agentic and the communal domain indicators.

Dynamics of Culture, Self-Construal, and Quality of Life

The formation of independent or interdependent self-construal is based on cultural characteristics of having more opportunity (Triandis, 1990). The claimed cultural differences of self-construal did not receive unequivocal support from cross-cultural comparisons that view culture and self-construals as constant, stable, and invariant constructs (Matsumoto, 1999). There is a need to view the culture and self-construal both as fluid and dynamic processes that are situation specific (Matsumoto, 1999) and relationship specific (Chang & Lee, 2012). With this understanding of independent and interdependent self, one can surmise that QOL evaluation, being mediated by self-construal, would also vary depending on the perceived emphasis of the environment. If the environment is seen to call for the “we” mentality, the reported SWB would be related to relationships with others (Kwan et al., 1997), normative expectation, and collective self-esteem (Bettencourt & Dorr, 1997). If the environment is seen to call for the “I” mentality, then the reported subjective well-being would consist of individual self-esteem (Gardener, Gabriel, & Lee, 1999; Kwan et al., 1997) and individual goals (Kwan et al.).

However, cultures differ in terms of both individual's sensitivity to the environment and the affordance of the “we” versus the “I” mentality (Gardener et al., 1999; Triandis, 1990). These differences afford differential chronicity of individually oriented and socially oriented cultural demands and motives for life satisfaction judgment (Yang, 2003). Individual's quality of life judgment, being a general and often global evaluation, is more likely influenced by the chronically accessible information. Besides, a culture-person fit in itself brings about satisfaction. Therefore, one can still view subjective well-being as a culture-bound construct where people who grew up in different cultures give different meanings to quality of life along the cultures' chronic differences in accessibility to either the independent or interdependent self.

Cross-References

- Human Development Index
- Multiple Discrepancies Theory
- Social Comparison Theory

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Index Construction

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Definition

An index number can be defined as a statistical measure showing changes in a variable or group of related variables with respect to time, geographical location, or other characteristics, like income, and profession. We will confine most of our attention to indices measuring economic variables like prices and changes over time. Suppose that a cup of coffee in a particular café costs 75p in 1995. In 2002 an identical cup of coffee costs 99p. How has the price changed between 1995 and 2002? The index can be calculated giving a value of 100 to the price in 1995 and by computing the proportionate change in price in 2002, which is $\frac{99}{75} * 100 = 132$. The index shows that there has been a price increase of 32 % since the base year 1995.

Description

There is a vast literature concerning the construction of index numbers and their desirable properties (Diewert and Nakamura (1993) and also IMF (2004)). Usually the first step in constructing an index is the selection of a *base period*, i.e., the period of time against which the comparison is made. The second step is the selection of items/commodities for which the change over time is calculated. The third step is the definition of a system of weights or, in other terms, the relative importance of the different commodities/items included in the index. The fourth step is the selection of an aggregation formula. Indices can be classified in two groups: unweighted and weighted index numbers.

Unweighted Index Numbers

1. Simple Aggregative Method

$$I_{01} = \frac{\sum p_1}{\sum p_0} * 100$$

The index is the sum of the prices of all commodities in the current year (year 1) divided by the sum of the prices of the same commodities in the base year (year 0). The fraction is multiplied by 100 to obtain a percentage. The main advantage of this method is its simplicity; disadvantages include the absence of weights to shape the relative importance of commodities, the possibility that outliers affect the result, and the need to have the same unit for all prices (e.g., all wholesale or retail prices).

2. Simple Average of Relatives Method

$$I_{01} = \frac{\sum \frac{p_1}{p_0}}{N} * 100$$

The index is the sum of price relatives (i.e., the price of a commodity in the current year divided by the price of the same commodity in the base year) divided by the sample size, and multiplied by 100. Instead of the sum (arithmetic mean), we could have a geometric mean. This index is not affected by the units in

which the prices are quoted or by the absolute value of prices. It is less influenced by outliers (especially when the aggregation is arithmetic), but it gives equal importance to all commodities. It only satisfies the unit test.

Weighted Index Numbers

Often, when calculating indices, it may be appropriate to assign weights to various items in order to reflect their relative importance in the group of items/commodities chosen. If w is the weight attached to a commodity, then a simple weighted price index is given by the formula:

$$P_{01} = \frac{\sum w * p_1}{\sum w * p_0} * 100$$

Weighted index numbers can be broadly classified in two groups:

1. **Weighted aggregative index numbers:** the weights are assigned to various items, and the weighted aggregate of prices is obtained. Many famous indices belong to this category:

- **Laspeyres' index:**

$$LP_{01} = \frac{\sum q_0 * p_1}{\sum q_0 * p_0} * 100$$

where q_0 is the quantity in the base year. The index has an upward bias: with normal goods, when prices increase, consumption tends to decrease, and the use of q_0 is an overestimation of the quantity actually consumed in time 1. A possible correction could be the use of the quantity index

$$LQ_{01} = \frac{\sum q_1 * p_0}{\sum q_0 * p_0} * 100.$$

- **Paasche's index:**

$$PP_{01} = \frac{\sum q_1 * p_1}{\sum q_1 * p_0} * 100$$

where q_1 is the quantity in the current year used as weight. Unlike the Laspeyres index, the Paasche's index has a downward bias.

- The **Dorbish and Bowley's index** combines Laspeyres' and Paasche's methods by using an arithmetic average:

$$DBP_{01} = \frac{LP_{01} + PP_{01}}{2} * 100$$

The pros of the DB method include the absence of bias and the satisfaction of the time and factor reversal tests. Cons are the difficult interpretation of the formula and the amount of information (base and current year prices and quantities) necessary to compute it.

- **Methods based on some typical periods:**

$TPP_{01} = \frac{\sum q_t * p_1}{\sum q_t * p_0} * 100$ where q_t is the fixed basket of some typical period t used as weight.

- **Marshall-Edgeworth index:**

$$MEP_{01} = \sqrt{\frac{\sum (q_0 * q_1) * p_1}{\sum (q_0 * q_1) * p_0}} * 100$$

This index takes the average of the current and the base year quantities as weight.

- **Walsh index:**

$$WP_{01} = \frac{\sum p_1 \sqrt{q_0 * q_1}}{\sum p_0 \sqrt{q_0 * q_1}} * 100$$

- **Fisher index:**

$$WP_{01} = \sqrt{LP_{01} * PP_{01}}$$

is the geometric mean of the Laspeyres' and Paasche's index. This index satisfies both the factor and the time reversal test, and it is called the ideal index number.

- 2. **Weighted average of price relatives:** the weights are assigned to price relatives, and then the result is aggregated using either an arithmetic or a geometric average. An example of this method is the weighted

arithmetic mean of price relatives using the base year:

$$WAPR_{01} = \frac{\sum \frac{p_1}{p_0} * (p_0 q_0)}{\sum p_0 q_0} * 100$$

Value Weights

Other approaches used to derive index numbers have been developed in the literature. The stochastic approach (Edgeworth, 1888; Jevons, 1856; Theil, 1967; Törnqvist, 1936) treats the observed price relatives as if they were a random sample drawn from a defined universe whose mean can be interpreted as the general rate of inflation. This general inflation rate can be estimated starting from a sample of observed prices and quantities, and a standard error can be attached to the estimate. Alternatively the economic approach derives price indices from what are considered to be reasonable models of economic behavior, usually through the specification of a utility function. This implies the assumption that prices and quantities are not independent, assumption which is absent in the fixed basket approach where prices and quantities are treated as independent. Another approach to index numbers, due to the French economist F. Divisia in the 1930s, assumes that both price and quantities are available as continuous function of time. He defines a set of differential equations to analyze the effect of price changes. The Divisia index is a weighted sum of its components' growth rates, where the weight for each component is the expenditure on that component as a proportion of total expenditure. The problem with the Divisia approach is that prices and quantities cannot be observed or collected continuously; they are collected in discrete time, so, for a practical use, one needs to derive a discrete approximation from the set of differential equation. It can be proven that the discrete approximation can be taken as a weighted average of the chain price relatives pertaining to adjacent periods. This leads us to the chain system as a way to construct indices. The idea is to construct the index number for each year using the preceding year as base year. Then, link relatives are chained together to

a chain index. Notice that chain indices only apply to intertemporal comparison; they are not applicable in a spatial context (e.g., comparisons of regions or countries). [Table 1](#) gives an example.

Year	Price	Link relatives	Chain index
2008	70	$(70/70)*100 = 100$	100
2009	82	$(82/70)*100 = 117.1$ $(117.1 * 100)/100 = 117.1$	
2010	84	$(84/82)*100 = 102.4$ $(102.4 * 117.1)/100 = 120.0$	
2011	96	$(96/84)*100 = 114.3$ $(114.3 * 120.0)/100 = 137.1$	

The formula for the chain index is then:

$$\text{Chain index} = (\text{Link relative of the current year} * \text{chain index of the previous year})/100$$

The chain index is useful when the commodity basket changes. As indicated by Diewert (2009), “one should chain if the prices and quantities pertaining to adjacent periods are more similar than the prices and quantities of more distant periods...,” where the concept of *similarity* has been the focus of this literature (see Diewert, 2009). Furthermore, one should not chain when prices oscillate as in the case of regular seasonal fluctuations of exceptional events.

The taxonomy is far from being complete as the literature has grown fast in the last decades. We refer to the manual of International Monetary Fund (2004) for a review of practical methods to construct index numbers and to W. E. Diewert (2009) for theoretical considerations.

Cross-References

- ▶ [Composite Index Construction](#)
- ▶ [Indices](#)

References

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1. The appreciation of art is an art-lover's reward.
2. Good art needs no justification beyond itself.
3. I enjoy art for its own sake.
4. Without art, life would be very dull.
5. I engage in artistic activities for the sake of the activities themselves.

On a five-point ► Likert scale, a score of 1 would mean that a respondent strongly disagreed with a particular item. A score of 5 would mean that a respondent strongly agreed with a particular item.

For the 918 respondents 18 years or older drawn from a random sample of households in five rural communities of British Columbia, the scale mean was 20.0 and the average item-total correlation was $r = 0.54$. The Cronbach reliability coefficient alpha was 0.77.

For the 639 respondents 18 years or older drawn from a random sample of households in British Columbia weighted by age and education according to the 2006 census, the scale mean was 19.7 and the average item-total correlation was $r = 0.47$. The Cronbach reliability coefficient alpha was 0.71.

Index of Arts and Arts-Related Activities as Ends in Themselves

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Synonyms

Art; Art for art's sake; Arts-related activities

Definition

This index was designed to measure the degree to which respondents believed that arts and arts-related activities were intrinsically valuable and needed no further justification.

Description

After an exploratory study by Michalos (2005); Michalos and Kahlke (2008, 2010) created five indexes designed to measure respondents' beliefs about the impact of artistic activities on aspects of their lives. This index was formed by calculating the sum of the values of the five variables in it.

Cross-References

- Arts in British Columbia, Canada
- Happiness
- Index of Arts as Community Builders
- Index of Arts as Self-Developing Activities
- Index of Arts as Self-Health Enhancers
- Index of Arts as Spirit-Building
- Life Satisfaction
- Perceived Quality of Life
- Subjective Well-being

References

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Index of Arts as Community Builders

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For the 637 respondents 18 years or older drawn from a random sample of households in British Columbia weighted by age and education according to the 2006 census, the scale mean was 22.5 and the average item-total correlation was $r = 0.58$. The Cronbach reliability coefficient alpha was 0.82.

Synonyms

[Arts-related activities; Community building](#)

Definition

This index was designed to measure the degree to which respondents believed that artistic activities contributed to community building.

Description

After an exploratory study by Michalos (2005); Michalos and Kahlke (2008, 2010) created five indexes designed to measure respondents' beliefs about the impact of artistic activities on aspects of their lives. This index was formed by calculating the sum of the values of the six variables in it.

1. My artistic activities help me to learn about other people.
2. My artistic activities help me to accept differences among people.
3. My artistic activities help me feel connected to this community.
4. Artists help build community solidarity.
5. Artistic activity strengthens a community.
6. Artistic activity in a community increases its social capital.

On a five-point ► [Likert](#) scale, a score of 1 would mean that a respondent strongly disagreed with a particular item. A score of 5 would mean that a respondent strongly agreed with a particular item.

For the 917 respondents 18 years or older drawn from a random sample of households in five rural communities of British Columbia, the scale mean was 22.5 and the average item-total correlation was $r = 0.65$. The Cronbach reliability coefficient alpha was 0.86.

Cross-References

- [Arts in British Columbia, Canada](#)
- [Happiness](#)
- [Index of Arts and Arts-Related Activities as Ends in Themselves](#)
- [Index of Arts as Self-Developing Activities](#)
- [Index of Arts as Self-Health Enhancers](#)
- [Index of Arts as Spirit-Building](#)
- [Life Satisfaction](#)
- [Perceived Quality of Life](#)
- [Solidarity](#)
- [Subjective Well-being](#)

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Index of Arts as Self-Developing Activities

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Synonyms

[Arts and self-development; Arts-related activities](#)

Definition

This index was designed to measure the degree to which respondents believed that their artistic activities contributed to their self-development.

Description

After an exploratory study by Michalos (2005); Michalos and Kahlke (2008, 2010) created five indexes designed to measure respondents' beliefs about the impact of artistic activities on aspects of their lives. This index was formed by calculating the sum of the values of the six variables in it.

My artistic activities:

1. Give me self-confidence
2. Help me to learn about myself
3. Help me to reveal my thoughts, feelings, or physical skills to others
4. Contribute to my self-esteem
5. Help me develop my social skills
6. Help me express my personal identity

On a five-point ► Likert scale, a score of 1 would mean that a respondent strongly disagreed with a particular item. A score of 5 would mean that a respondent strongly agreed with a particular item.

For the 925 respondents 18 years or older drawn from a random sample of households in five rural communities of British Columbia, the scale mean was 22.9 and the average item-total correlation was $r = 0.72$. The Cronbach reliability coefficient alpha was 0.89.

For the 642 respondents 18 years or older drawn from a random sample of households in British Columbia weighted by age and education according to the 2006 census, the scale mean was 22.8 and the average item-total correlation was $r = 0.64$. The Cronbach reliability coefficient alpha was 0.86.

Cross-References

- Arts in British Columbia, Canada
- Happiness

- Index of Arts and Arts-Related Activities as Ends in Themselves
- Index of Arts as Community Builders
- Index of Arts as Self-Health Enhancers
- Index of Arts as Spirit-Building
- Life Satisfaction
- Perceived Quality of Life
- Subjective Well-being

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Index of Arts as Self-Health Enhancers

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Synonyms

- Arts-related activities

Definition

This index was designed to measure the degree to which a respondent believed that his or her artistic activities enhanced his or her health.

Description

After an exploratory study by Michalos (2005); Michalos and Kahlke (2008, 2010) created five indexes designed to measure respondents' beliefs

about the impact of artistic activities on aspects of their lives. This index was formed by calculating the sum of the values of the six variables in it.

My artistic activities:

1. Have a positive effect on my life
2. Help me to relax
3. Help relieve stress
4. Contribute to my emotional well-being
5. Help me to stay healthy
6. Contribute to my overall well-being

On a five-point ► [Likert](#) scale, a score of 1 would mean that a respondent strongly disagreed with a particular item. A score of 5 would mean that a respondent strongly agreed with a particular item.

For the 935 respondents 18 years or older drawn from a random sample of households in five rural communities of British Columbia, the scale mean was 24.8 and the average item-total correlation was $r = 0.72$. The Cronbach reliability coefficient alpha was 0.88.

For the 648 respondents 18 years or older drawn from a random sample of households in British Columbia weighted by age and education according to the 2006 census, the scale mean was 24.6 and the average item-total correlation was $r = 0.68$. The Cronbach reliability coefficient alpha was 0.87.

Cross-References

- [Arts in British Columbia, Canada](#)
- [Happiness](#)
- [Index of Arts and Arts-Related Activities as Ends in Themselves](#)
- [Index of Arts as Community Builders](#)
- [Index of Arts as Self-Developing Activities](#)
- [Index of Arts as Spirit-Building](#)
- [Life Satisfaction](#)
- [Perceived Quality of Life](#)
- [Subjective Well-Being](#)

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Index of Arts as Spirit-Building

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Synonyms

[Arts-related activities](#)

Definition

This index was designed to measure the degree to which respondents believed that their artistic activities were spirit-building.

Description

After an exploratory study by Michalos ([2005](#)), Michalos and Kahlke ([2008, 2010](#)) created five indexes designed to measure respondents' beliefs about the impact of artistic activities on aspects of their lives. This index was formed by calculating the sum of the values of the four variables in it.

1. My artistic activities help me preserve my cultural heritage.
2. I engage in artistic activities to express my spirituality.
3. My artistic activities help me express my ethnic identity.
4. Art is important for expressing my religious feelings.

On a five-point ► [Likert](#) scale, a score of 1 would mean that a respondent strongly disagreed with a particular item. A score of 5 would mean that a respondent strongly agreed with a particular item.

For the 919 respondents 18 years or older drawn from a random sample of households in five rural communities of British Columbia, the scale mean was 11.1 and the average item-total correlation was $r = 0.72$. The Cronbach reliability coefficient alpha was 0.89.

Cross-References

- [Arts in British Columbia, Canada](#)
- [Happiness](#)
- [Index of Arts and Arts-Related Activities as Ends in Themselves](#)
- [Index of Arts as Community Builders](#)
- [Index of arts as Self-Developing Activities](#)
- [Index of Arts as Self-Health Enhancers](#)
- [Life Satisfaction](#)
- [Perceived Quality of Life](#)
- [Subjective Well-being](#)

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Index of Attitudes Favorable Toward Sustainable Development

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Synonyms

[Attitudes; Sustainable development attitudes](#)

Definition

This index was designed to measure the degree to which an average tenth-grade student has ► [attitudes](#) favorable toward ► [sustainable development](#) as understood in UNESCO documents.

Description

The UNESCO Monitoring and Evaluation Expert Group had the responsibility of assessing progress across the UN Decade of Education for Sustainable Development (2005–2014). A standardized test of some sort appeared to be necessary to make such assessments in a rigorous fashion. Accordingly, in Michalos, Creech, McDonald, and Hatch-Kahlke (2011), exploration was undertaken to construct alternative measures. Based on results of that exploration, a revised index was introduced in Michalos et al. (2012) as an aid to those involved in assessing the attitudes of students.

The index was formed by calculating respondents' average score on the following 15 items:

1. Every person should receive education that teaches the knowledge, values, and skills necessary for sustainable living in a community.
2. The present generation should make sure that the next generation can live in communities that are at least as healthy as those that exist today.
3. Manufacturers should discourage the use of disposables.
4. As long as resources are available, using more than we need now does not threaten the health and welfare of future generations (reverse coded).
5. We don't need stricter laws and regulations to protect the environment (reverse coded).
6. It is important to find ways to reduce ► [poverty](#).
7. SD will not be possible until wealthier nations stop exploiting workers in poorer nations.
8. Understanding and addressing the problems of climate change is not important (reverse coded).

9. Use of fuel-efficient vehicles should be encouraged by governments.
10. Governments should adopt SD as a national priority.
11. Citizens should be well informed and actively participate in democratic processes like voting.
12. People who pollute our land, air, or water should pay for damage done to communities and the environment.
13. Males and females should have equal access to all kinds of education and employment.
14. It is alright to use as much water as we want, as long as it is available (reverse coded).
15. Household tasks should be equally shared among members of the household regardless of gender.

On a five-point Likert scale, a score of 1 would mean that the respondent strongly disagrees with an item. A score of 5 would mean that the respondent strongly agrees with an item.

The average score for 992 tenth-grade students drawn from volunteers from all of Manitoba's 36 school divisions was 2.1, with a range from 1.0 to 5.0. The average item-total correlation was $r = 0.53$, with a Cronbach reliability coefficient alpha of 0.84.

Cross-References

- [Sustainable Development](#)
- [Sustainable Development Indicators](#)

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- Michalos, A. C., Creech, H., Swayze, N., Kahlke, P. M., Buckler, C., & Remple, K. (2012). Measuring knowledge, attitudes and behaviours concerning sustainable development among tenth grade students in Manitoba. *Social Indicators Research*, 106, 213–238.

Index of Behaviors Favorable Toward Sustainable Development

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Synonyms

[Sustainable development behaviors](#)

Definition

This index was designed to measure the degree to which an average tenth-grade student has behaviors favorable toward sustainable development as understood in UNESCO documents.

Description

The UNESCO Monitoring and Evaluation Expert Group had the responsibility of assessing progress across the UN Decade of Education for Sustainable Development (2005–2014). A standardized test of some sort appeared to be necessary to make such assessments in a rigorous fashion. Accordingly, in Michalos, Creech, McDonald, and Hatch-Kahlke (2011), exploration was undertaken to construct alternative measures. Based on results of that exploration, a revised index was introduced in Michalos et al. (2012) as an aid to those involved in assessing the behavior of students.

The index was formed by calculating respondents' average score on the following 14 items:

1. I choose to walk or bike to places instead of using a motor vehicle.
2. I never waste water.
3. At home I recycle as much as I can.
4. I try to do things that will help people living in poverty.
5. I pick up litter when I see it in a park or a natural area.

6. I do not think about how I might be damaging the natural environment (reverse coded).
7. Even when I have the option, I do not always compost (reverse coded).
8. I try to avoid buying goods from companies with poor track records on caring for their workers or the environment.
9. I have changed my personal lifestyle to reduce waste.
10. I participate in democratic activities related to student life at my school.
11. I volunteer to work with local charities or environmental groups.
12. I usually examine problems from many points of view.
13. I have thought quite a bit about how to live sustainably.
14. I give men and women and boys and girls the same level of respect.

On a five-point ► Likert scale, a score of 1 would mean that the respondent strongly disagrees with an item. A score of 5 would mean that the respondent strongly agrees with an item.

The average score for 968 tenth-grade students drawn from volunteers from all of Manitoba's 36 school divisions was 2.8, with a range from 1.0 to 5.0. The average item-total correlation was $r = 0.66$, with a Cronbach reliability coefficient alpha of 0.83.

Cross-References

- Sustainable Development
- Sustainable Development Indicators

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- Michalos, A. C., Creech, H., McDonald, C., & Hatch-Kahlke, P. M. (2011). Measuring knowledge, attitudes and behaviours concerning education for sustainable development: Two exploratory studies. *Social Indicators Research*, 100, 391–413.
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Index of Child Health in Africa

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Synonyms

[Child health in Africa](#); [Child health questionnaire \(CHQ\)](#)

Definition

The index of child health in Africa (ICHA) is an evidence-based composite social indicator (or index) of children's health quality in the least-developed countries (LDCs) of Africa, in terms of the variables of child health defined in the Millennium Development Goals (MDG), which provide a framework of time-bound targets by which progress can be measured. This synthetic indicator integrates variables of child health that permit a territorial ordering of the LDCs of Africa in terms of those partial indicators. The ICHA is a composite index developed by José Antonio Rodríguez (2012), is applied to the least-developed countries (LDCs) of Africa for the year 2008, and is based on the P_2 distance method of Pena (1977, 2009). Its overall goal is to enhance understanding of the health of ► [Child and Youth Well-Being Index \(CWI\)](#) in Africa and to improve their ► [qualitative indicators of development](#) and health-related quality of life (QOL) measures.

Description

Introduction

In September 2000, leaders from 189 nations agreed on a vision for the future: a world with less poverty, hunger, and disease; greater survival prospects for mothers and their infants; better educated children; and a world in which

developed and ► developing countries worked in partnership for the betterment of all. This vision took the form of eight Millennium Development Goals (MDG), which provide a framework of time-bound targets by which progress can be measured (United Nations [UN], 2005).

Reaching the MDG on reducing child mortality in Africa will require universal coverage with key effective, affordable interventions: care for newborns and their mothers; infant and young child feeding; vaccines; prevention and case management of diarrhea, pneumonia, and sepsis; malaria control; and prevention and care of HIV/AIDS. Reducing the number of children who die before the age of 5 years is the fourth Millennium Development Goal (MDG 4). The aim is to reduce mortality in this age group by two-thirds between 1990 and 2015.

The fifth goal (MDG 5) is to achieve the same for mothers during pregnancy or childbirth and specifically to reduce the maternal mortality ratio by three-quarters. These problems are particularly serious among high-risk pregnancies and births, especially in developing countries where healthcare systems are still struggling to provide basic public health and child health services to the population (Rodríguez & Salinas, 2011).

The renewed interest in protecting and promoting both maternal and child health has led to the three-pronged approach of tackling malaria in pregnancy, namely, intermittent preventive treatment of malaria using an effective antimalarial drug to address the heavy burden of asymptomatic infections among pregnant women residing in areas of moderate or high transmission of *P. falciparum*, the use of insecticide-treated nets by all pregnant women, and effective case management of malaria illness and anemia. Certainly, it seems unlikely that simply “handing families more money” will solve all child health problems. Perhaps more plausible is the idea that low income often comes packaged with other attributes which may be limiting to child health (e.g., low education) (Phipps, 2007, pp. 190).

Methodology. A Synthetic Social Indicator of Child Health: The P₂ Distance

The methodology employed is based on the construction of a synthetic index in terms of a set of intermediate variables, which contribute to quantifying the fulfillment of the UN Millennium Development Goals of child health. We make no attempt to argue that they constitute an “ideal” list. Rather, they represent reasonable choices given limited availability of comparable measures of child health status. In this sense, synthetic indicators, which we apply in our study, integrate all the information on the variables related to the level of child health, with the synthetic indicator DP₂ of Pena.

The synthetic indicator DP₂ fulfills these properties, as analyzed by Zarzosa (2012) and Rodríguez, Salinas, and Ubiña (2011). In short, the proposed DP₂ indicator can be considered an instrument derived from the idea that we are addressing a multidimensional concept as compared to accounting approaches focused on the economic component (Pena, 2009). We take as reference a theoretical country that achieves the worst values of the variables being studied. The DP₂ indicator will give us the distances of each country from this theoretical country of reference. A higher value of DP₂, therefore, expresses a higher level of child health, as it represents a greater distance from the “least desired” theoretical situation.

The evaluation of child health implies the simultaneous use of many social indicators. In this multidimensional evaluation, defining an appropriate aggregation method to combine multiple indicators in an overall index is extremely important. In our opinion, DP₂ constitutes an optimum and appropriate method for applying the social indicators approach to the measurement of child health as the result of a ► multivariate statistical analysis set of factors (Rodríguez, 2012, p. 314).

The advantage of this indicator is that it resolves the question of aggregating variables expressed in different measures, arbitrary weighting, and the duplication of information, and it is designed to make interspatial and inter-temporary comparisons (Zarzosa, 1996).

In addition, by means of a correction factors, the new information is retained by incorporating the new information and avoiding the duplicated one. These factors are the weights of the partial indicators. The weights are determined on the one hand by the correction factor, which removes redundant information and preserves only whatever information proves useful, and on the other by the absolute values of the correlation coefficients between each partial indicator and the synthetic indicator, which determine the order used to estimate the regressions and, therefore, to calculate the synthetic indicator (Zarzosa & Somarriba, 2012).

Another relevant issue to consider in the DP₂ indicator is that the result changes when the input order of the variables is different, thus making it necessary to establish an order or hierarchy based on the information that each variable contributes to the DP₂ (Cuenca & Rodríguez, 2010; Somarriba & Pena, 2009). In our study, the variables are arranged in descending order of correlation with this indicator.

As has already been indicated, the aim of this study is to draw up a synthetic indicator of child health to permit comparison among thirty-one of the countries of Africa and the analysis of the disparities existing, using as reference the Millennium Development Goals (MDGs) by the UN of ► [child health and development](#) (Table 1).

For this stage, we followed the methodology of the OECD (2002) to approach the concept of child health. This methodology consists of dividing the concept into various areas or domains that are objectively considered to be its components, in this study the eight millennium objectives of the UN, and each of these areas is in turn subdivided into subareas, and the disaggregation continues until minimum levels are reached (Cuenca, Rodríguez, & Navarro, 2010). These are assigned a statistical measurement or social indicator to permit the evolution of that division to be monitored to permit comparison among thirty-one of the LDCs of Africa and the analysis of the disparities existing in 2008, with the latest data available.

Index of Child Health in Africa, Table 1 Synthetic indicator of child health in African LDCs (2008): countries in order of relative DP₂

Country	DP ₂ indicator
Togo	19.18
Benin	17.17
Sudán	17.05
United Republic of Tanzania	16.70
Liberia	16.19
Senegal	16.01
Zambia	15.76
Eritrea	15.43
Uganda	15.26
Malawi	15.00
Mozambique	14.76
Lesotho	14.75
Isle of Madagascar	14.23
Gambia	14.14
Rwanda	14.00
Djibouti	13.97
Guinea	13.93
Burkina Faso	12.94
Guinea-Bissau	12.01
Ethiopia	11.80
Democratic Republic of the Congo	11.71
Mauritania	11.50
Mali	11.45
Sierra Leone	11.20
Equatorial Guinea	10.53
Central African Republic	10.44
Niger	10.27
Burundi	9.93
Angola	9.18
Somalia	6.57
Chad	4.57

Source: Rodríguez (2012); UN (2009)

The next step in our investigation was to select the partial indicators or variables, taking into account that a partial indicator must as a priority possess two properties: (1) a high power of discrimination, as otherwise it would make very little contribution to the measurement of child health, and (2) that the greater the quantity of information contributed by an indicator that is not contained in the overall information of the indicators already incorporated into the synthetic indicator, the better the partial indicator.

In this sense, neither the menu of the primary series nor the aggregation function is predetermined from theory and practice, but are “moving parts” of the index-key decision variables and ► **subjective indicators** that the analyst is free to choose, largely unconstrained by economic or other theories intended to inform measurement practice (Ravallion, 2011). In our study, we used 10 social indicators or variables associated with each of the millennium goals related to quality of life in children from birth to age 5.

Finally, it should be pointed out that the variables that bear a negative relation to child health, i.e., those whose increases may be associated with reductions in child health, are reflected in the matrix of observations X with a negative sign. Specifically, the variables with negative sign are those associated with goals:

- 1a) Percentage of children under 5 severely underweight
- 4a) Infant mortality rate (0–5 year) per 1.000
- 4b) Infant mortality rate (0–1 year) per 1.000
- 6a) Malaria death rate per 100.000 population, ages 0–4

Variables of child health by UN Millennium Development Goals (MDGs) and sign of the relationship of the variables to the increase in child health:

Goal 1. Eradicate extreme poverty and hunger: (a) Percentage of children under 5 severely underweight (negative sign –).

Goal 4. Reduce child mortality: (a) Infant mortality rate (0–5 year) per 1,000 (negative sign –), (b) infant mortality rate (0–1 year) per 1,000 (negative sign –), (c) proportion of 1-year-old children immunized against DPT3 (positive sign +), (d) proportion of 1-year-old children immunized against measles (positive sign +), and (e) average life expectancy at birth (positive sign +).

Goal 5. Improve maternal health: (a) Proportion of births attended by skilled health personnel (positive sign +).

Goal 6. Combat HIV/AIDS, malaria, and other diseases: (a) Malaria death rate per 1,00,000 population, ages 0–4 (negative sign –); (b) percentage of children under

5 sleeping under insecticide-treated bed nets (positive sign +); and (c) percentage of children under 5 with fever being treated with antimalarial drug (positive sign +).

Results of Indicator DP₂ of Child Health in the LDCs of Africa

When interpreting the results, it should be borne in mind that we took as reference the “worst” theoretical situation of a country, i.e., where its partial indicators or variables attain minimum values. In consequence, a higher value of a country’s DP₂ implies an improvement as regards the child health situation, because it represents a greater distance from the “least desired” theoretical situation (Table 1).

The results show that the country with the best child health in 2008 was Togo, with a distance of 19.18 from the baseline. Togo was followed by Benin (17.17) and Sudan (17.05). In this regard, given the high relative values of these countries in most of the variables analyzed (values higher than the average distance of 13), their high position is not surprising.

In contrast, Chad and Somalia were among the countries with the worst theoretical situations, showing a distance from the baseline of 4.57 and 6.57, respectively. Importantly, Angola, which accounts for over 3.50 % of the population, obtained a relatively low position.

This means that the maximum distance intercountry, between the maximum and minimum value obtained, was almost 15, which shows that the disparities between the LDCs of Africa surveyed were high. Another way to express these differences clearly is through the coefficient of openness (quotient between the maximum and minimum values) which reached a value of 4.2.

Finally, there were significant differences in child health across countries regarding the value of traditional variables. The variables showing the greatest differences in values among countries were “malaria death rate per 1,00,000 population, ages 0–4,” the variable associated with goal 6 (combat HIV/AIDS, malaria, and other diseases), “infant mortality rate (0–1 year) per 1,000,” and “infant mortality rate (0–5 year) per 1,000.” In this case, there are outstanding differences in the value

of the variables among the countries, so that the partial indicators will contribute much to the synthetic indicator of distance.

Furthermore, it can be seen that there exist three minimally informative variables with a practically nil power of discrimination: “percentage of children under 5 sleeping under insecticide-treated bed nets,” “average ► life expectancy at birth,” and “proportion of births attended by skilled health personnel.”

Discussion

Through scientific method, the DP₂ also solves the principal limitations of this approach, namely, the disaggregated character of the measures and the duplication of information. Our DP₂ child health index constitutes a novel contribution insofar as it was constructed using 10 variables and the criteria defined in the Goals of the Millennium Declaration, which are generally considered to determine countries' levels of underdevelopment. This is a quantitative synthetic indicator, which includes the characteristic of multidimensionality to allow comparisons among the LDCs of Africa.

The DP₂ distance method shows the existence of strongly polarized territorial disparities in child health in the LDCs of Africa in 2008 (Table 1). The values of the synthetic indicator show a considerable gap between the maximum and minimum value obtained by the best- and worst-ranked countries in 2008: Togo and Chad, respectively. The significantly different values of the variables of the DP₂ suggest that progress in child health is very uneven among the LDCs of Africa. In particular, greater attention should be given to the variables that best explain child health among the countries studied, namely, those associated with goal 6 (combat HIV/AIDS, malaria, and other diseases) and goal 4 (reduce child mortality).

This study aims to contribute new insights in order to improve the knowledge and the impact of the variables considered in these unique and poverty-stricken countries. These conclusions should have implications for the ► development aid strategy of international

organizations, especially the United Nations (UN), for whom our study was carried out, with the aim of reducing territorial inequalities among the countries, which without doubt would result in better overall child health in the LDCs of Africa. The UN should take this fact more into account when designing programs to raise the standards of child health in these countries.

Finally, although some encouraging advances have been made in child health in the LDCs of Africa, faster progress is required to achieve the MDGs in the 3 years remaining until 2015, especially those occupying the bottom positions in our classification (Table 1), which without doubt would result in greater overall health-related quality of life (QOL) measures.

Acknowledgments Financial support from Government of Spain grant number MEC-2010 17049/ECON is gratefully acknowledged.

Cross-References

- American Indian/Alaska Native child health indicators
- Child and Youth Well-Being Index (CWI)
- Child Health and Development
- Child Health Questionnaire (CHQ)
- Children from Birth to Age Five, Quality of Life in Development
- Developing Countries
- Health-Related Quality of Life Measures
- Life Expectancy
- Multivariate Statistical Analysis
- Qualitative Indicators of Development
- Subjective Indicators
- Synthetic Indicators of the Quality of Life in Europe

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Index of Crime-Related Worries

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Synonyms

[Measure of crime-related worries; Victimization](#)

Definition

This index was designed to measure the degree to which a respondent is worried about being victimized in six different ways.

Description

The index was introduced in Michalos and Zumbo (2000) and used again in Michalos, Hubley, Zumbo, and Hemingway (2001). The index was formed by calculating respondents' average score on the following six items.

1. A thief will break into your home while you are away.
2. Someone will use a weapon to take something from you by force.
3. Someone will steal a personal item (e.g., coat, purse) when you have left it somewhere unattended.
4. A thief will break into your home while you are home.
5. Someone will cheat or con you out of a large amount of your money.
6. Someone will assault you.

On an 11-point ► Likert scale, a score of 0 would mean that the respondent never worried about being victimized by a crime in the list. A score of 10 would mean that the respondent worried a great deal about being victimized by a crime in the list.

The average score for 735 respondents 18 years or older drawn from a random sample of households in Prince George, British Columbia, in November 1997 was 3.9, with a range from 0 to 10. The Cronbach reliability coefficient alpha was 0.84 (Michalos and Zumbo 2000).

The average score for 855 respondents 55 years or older drawn from a convenience sample of households in Prince George, British Columbia, in September 1999 was 3.6, with a range from 0 to 10. The Cronbach reliability coefficient alpha was 0.91 (Michalos, Hubley, Zumbo, & Hemingway, 2001).

Cross-References

- ▶ [Happiness](#)
- ▶ [Life Satisfaction](#)
- ▶ [Perceived Quality of Life](#)
- ▶ [Subjective Well-being](#)

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Index of Economic Well-Being

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Synonyms

IEWB

Definition

The Index of Economic Well-being (IEWB) is a composite index developed in the late 1990s by Lars Osberg and Andrew Sharpe (2002, 2005; with recent updates, Osberg and Sharpe 2009, 2011) and is based on Osberg (1985).

Description

The IEWB is calculated as the weighted sum of four domains of economic welfare:

- Per capita consumption
- Per capita wealth
- Economic equality
- Economic security

These four domains reflect economic well-being in both the *present* and the *future* and account for both *average* access to economic resources and the *distribution* of that access among members of society.

1. *Effective per capita consumption flows* – includes consumption of marketed goods and services plus household production plus government services, with adjustment for changing household economies of scale and trends in leisure and life expectancy
2. *Net societal accumulation of stocks of productive resources* – consists of net accumulation of physical capital plus changes in the value of natural resources stocks, net international investment position, human capital, and research and development (R&D) stocks, adjusted for costs of environmental degradation (i.e., Greenhouse Gas Emissions)
3. *Income distribution* – weighted sum of the intensity of poverty (incidence and depth) and the Gini index of inequality of income
4. *Economic security* from job loss and unemployment, the financial costs of illness, family breakup, and poverty in old age

The philosophy underlying the IEWB is that there is more to the “well-being” of society than economics, but a key component is “access to economic resources.” Because many citizens have reason (e.g., when voting) to ask questions of the form “Would public policy X make ‘society’ better off?,” an index of well-being can be useful, unless self-interest is always the sole criterion for everyone. (The construction of a social index cannot help individuals in their personal utility maximization.) However, “society’s well-being” is not a single, objective number (like the average altitude of a country). Rather, each individual in society makes a subjective evaluation of objective data in coming to a personal conclusion about society’s well-being. Well-being has multiple dimensions, and individuals differ (and have the moral right to differ) in their subjective valuation of the relative importance of each dimension of well-being. From this perspective, the purpose of index construction should be to assist individuals – for example, as voters in elections

Index of Economic Well-Being, Table 1 Conceptual framework for the index of economic well-being

Concept	Present	Future
"Typical citizen" or "representative agent"	Average flow of current income	Aggregate accumulation of productive stocks
Heterogeneity of citizens	Distribution of potential consumption – income inequality and poverty	Insecurity of future incomes

and as bureaucrats in policy making – in coming to a *subjective* evaluation of organized, objective data, without assuming that all individuals have the same values.

Our identification of four components of well-being recognizes both trends in average outcomes and in the diversity of outcomes, both now and in the future, as [Table 1](#) illustrates.

When an average flow like Gross Domestic Product (GDP) per capita (or an alternative, such as the average personal income) is used as a summative index of well-being, the analyst implicitly is stopping in the first quadrant – assuming that the experience of a representative agent can summarize the well-being of society and that the measured income flow optimally weighs consumption and savings, so that one need not explicitly distinguish between present consumption flows and the accumulation of asset stocks which will enable future consumption flows. As well, the weight of income distribution and economic insecurity is implicitly set to zero, by ignoring entirely their influence.

However, if society is composed of diverse individuals, each person's estimate of societal economic well-being will depend on the proportion of national income saved for the future. GDP per capita, for example, does not reveal the savings rate, and there is little reason to believe that the national savings rate is automatically optimal. (Indeed, if citizens have differing rates of time preference, any given savings rate will only be "optimal" from some persons' points of view.) Hence, a better estimate of the well-being of society should allow analysts to distinguish between current consumption and the accumulation of productive assets (which determines the sustainability of current levels of consumption) and thereby enable citizens to apply their differing values.

As well, individuals are justifiably concerned about the degree to which they and others will share in prosperity – there is a long tradition in economics that "social welfare" depends on both average incomes and the degree of inequality and poverty in the distribution of incomes. If the future is uncertain, and complete insurance is unobtainable (either privately or through the welfare state), individuals will also care about the degree to which the economic future is secure for themselves and others.

Because reasonable people may disagree in the relative weight they would assign to each dimension – for example, some will argue that inequality in income distribution is highly important while others will argue the opposite – it is preferable to be explicit and open about the relative weights assigned to components of well-being, rather than leaving them implicit and hidden. The IEWB specifies *explicit* weights to the components of well-being and provides a website (<http://www.csls.ca/iwb.asp>) to enable others to experiment with alternative weights in order to assess whether, by their personal values of what is important in economic well-being, they would agree with an overall assessment of trends in well-being.

Cross-References

- [Composite Index Construction](#)
- [Gini Coefficient](#)
- [Poverty](#)

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Index of Environmental Friendliness

► Environment Friendly Index

Index of Inegalitarianism

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Synonyms

Modern prejudice; Racism; Sexism

Definition

This index was designed to measure the degree to which a respondent is inegalitarian.

Description

Following work by McConahay (1986); Morrison, Morrison, Pope, and Zumbo (1999);

and Swim, Aikin, Hall, and Hunter (1995), the index was introduced in Michalos and Zumbo (2001) as one of several indexes designed to provide an overview of people’s attitudes and beliefs concerning the cultural or ethnic background of others. The index was formed by calculating respondents’ average score on the following nine items.

1. Visible minorities in your community have all the rights they need.
2. Women in your community have all the rights they need.
3. Gay men and lesbians in your community have all the rights they need.
4. Aboriginal people in your community have all the rights they need.
5. Eastern Europeans in your community have all the rights they need.
6. Senior citizens in your community have all the rights they need.
7. Young people in your community have all the rights they need.
8. Dark-skinned people in your community have all the rights they need.
9. Asian people in your community have all the rights they need.

On a 5-point ► Likert scale, a score of 1 would mean that a respondent is thoroughly egalitarian insofar as he or she thinks that the rights of people in each of the designated groups are not as comprehensive or secure as they should be, i.e., for such respondents, the democratic ideal of complete equality for all residents has not yet been achieved. A score of 5 would mean that a respondent is thoroughly inegalitarian insofar as he or she thinks that the rights of people in each of the designated groups are as comprehensive and secure as they should be, i.e., for such respondents, the democratic ideal of complete equality for all residents has been achieved.

The average score for 731 respondents 18 years or older drawn from a random sample of households in Prince George, British Columbia, was 3.2, with a range from 1.0 to 5.0. The average item-total correlation was $r = 0.76$, with a Cronbach reliability coefficient alpha of 0.94.

Cross-References

- Happiness
- Human Rights
- Life Satisfaction
- Perceived Quality of Life
- Subjective Well-being

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Description

The UNESCO Monitoring and Evaluation Expert Group had the responsibility of assessing progress across the UN Decade of Education for Sustainable Development (2005–2014). A standardized test of some sort appeared to be necessary to make such assessments in a rigorous fashion. Accordingly, in Michalos, Creech, McDonald, and Hatch-Kahlke (2011), we began to explore alternative measures. Based on results of that exploration, a revised index was introduced in Michalos et al. (2012) as an aid to those involved in assessing the knowledge of students.

The index was formed by calculating respondents' average score on the following 20 items:

1. Economic development is necessary for sustainable development (SD).
2. Improving people's opportunities for long and healthy lives contributes to SD.
3. Protecting the environment is necessary for SD.
4. A culture of peace where people settle conflicts by discussion is necessary for SD.
5. Human actions are contributing to changes in our atmosphere and climate systems.
6. SD requires individuals to reduce all kinds of waste.
7. Good citizenship is necessary for SD.
8. SD is not dependent on gender equality (reverse coded).
9. The elimination of poverty is necessary for SD.
10. SD requires access to good quality education for everyone.
11. SD requires businesses to behave responsibly to their employees, customers, and suppliers.
12. Conservation of freshwater is necessary for SD.
13. "Maintaining biodiversity" means maintaining the number and variety of living organisms. This is necessary for SD.
14. Respect for cultural diversity is necessary for SD.
15. SD requires respect for human rights.
16. SD requires shifting to the use of renewable resources as much as possible.
17. SD requires achieving the United Nations' Millennium Development Goals.

Index of Knowledge of Sustainable Development

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Synonyms

[Sustainable development knowledge](#)

Definition

This index was designed to measure the degree to which an average tenth-grade student has accurate knowledge of sustainable development as understood in UNESCO documents.

18. SD requires people to learn new things throughout their lives.
19. SD requires people to reflect on what it means to improve the quality of life.
20. SD requires that people understand how the economy works.

On a five-point ► [Likert](#) scale, a score of 1 would mean that the respondent strongly disagrees with an item. A score of 5 would mean that the respondent strongly agrees with an item.

The average score for 673 tenth-grade students drawn from volunteers from all of Manitoba's 36 School Divisions was 2.1, with a range from 1.0 to 5.0. The average item-total correlation was $r = 0.52$, with a Cronbach reliability coefficient alpha of 0.89.

Definition

IMD is an attempt to represent a variety of components of social deprivation with a single quantitative value.

Description

A number of indices of multiple deprivation (IMD) have been produced for the four component countries of the UK (England, Northern Ireland, Scotland, and Wales). Each of the IMDs is based on four key assumptions:

1. That deprivation is comprised of a number of distinct dimensions (or domains and sub-domains).
2. That each of the dimensions identified under assumption 1 can be captured by a set of quantitative indicators via data available from one or more government agencies.
3. That all of the indicators identified under assumption 2 can be mathematically aggregated into a single numerical value (index) of deprivation.
4. That it is possible to derive values of the index for a variety of spatial units depending upon what is deemed to be most suitable for national requirements and where data are available for the required spatial scale. This allows for a ranking of spatial units depending upon their value of the IMD.

Though each of the IMDs has been based on a common method, there are differences between the IMDs of the four UK nations, and there have been changes over time for the same country. As a result, the separate indices may not be used together to create a single UK-wide IMD, and comparisons of the IMD over time for the same country also need to be handled with care. Here only the IMD for England will be discussed in detail. The IMD for England was first released in 2000 at the ward level, where a ward is a district used for local elections (can be coterminous with a parish or groups of parishes). IMD 2000 was developed by the University of Oxford at the behest of what was then the Department of the Environment, Transport and the Regions (DETR)

Cross-References

- [Sustainable Development](#)
- [Sustainable Development Indicators](#)

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Index of Multiple Deprivation (IMD) (UK)

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Synonyms

[IMD](#)

and replaced the 1998 Index of Local Deprivation (ILD). It has been updated twice – in 2004 and in 2007. A comparison of the composition of the three IMDs is set out as [Table 1](#). It should be noted that for each of the three IMDs, the data used to estimate the indicators were typically 1–3 years old. Thus, for example, IMD 2000 would largely be based upon data from the late 1990s rather than from the year 2000 as would perhaps be expected from its name. [Table 1](#) does not include the detailed mechanics of how the data that comprise each indicator were transformed and aggregated. Also, for the sake of simplification, the emphasis of [Table 1](#) is more in terms of “indicator theme” (the thrust of what was being included as indicators) rather than details of the indicators themselves. Thus, for example, disability is included as an “indicator

theme” in [Table 1](#) and was actually represented by a number of specific indicators within the three IMDs. The IMD developed for England and published in 2000 has 6 “domains” of deprivation and a total of 32 indicators. Half of the index was derived from the income and employment domains. The remaining half of the index was found from the domains of health, education, housing, and access to services. The index had no dimension which covered crime or the physical environment (air and water quality) but was unusual among other measures of deprivation in that it included an assessment of geographical access to certain key services such as health care and primary schools. IMD 2000 did receive criticism, most notably with regard to its focus on the ward level which was deemed by some to be too large scale. For example, Niggebrugge,

Index of Multiple Deprivation (IMD) (UK), Table 1 Summary of the indices of multiple deprivation for England (2000, 2004, and 2006)

IMD	Indicator theme	2000	2004	2007
Domain/sub-domain of deprivation				
Income deprivation	People in income support	✓	✓	✓
	People in income-based jobseekers' allowance	✓	✓	✓
	People in family credit/working families' tax credit	✓	✓	✓
	People in pension credit	✓		
	People in child tax credit	✓		
	People in disability working allowance/disabled persons tax credit/benefits	✓	✓	
	National Asylum Support Service supported asylum seekers	✓	✓	
	Contribution to final index (%)	25	22.5	22.5
Employment deprivation	Unemployment (claimants, jobseekers' allowance)	✓	✓	✓
	People on New Deal options	✓	✓	✓
	Incapacity benefit recipients	✓	✓	✓
	Severe Disablement Allowance claimants/recipients	✓	✓	✓
	Contribution to final index (%)	25	22.5	22.5
Health deprivation and disability	Mortality ratios for men and women at ages under 65 years of potential life lost	✓	✓	✓
	Acute morbidity	✓		
	Limiting long-term illness	✓		
	Proportion of births of low weight (<2,500 g)	✓		
	Emergency admissions to hospital	✓		
	Disability rates	✓	✓	✓
	Adults under 60 suffering from mood or anxiety disorders	✓	✓	
	Contribution to final index (%)	15	13.5	13.5

(continued)

Index of Multiple Deprivation (IMD) (UK), Table 1 (continued)

IMD

Domain/sub-domain of deprivation	Indicator theme	2000	2004	2007
Education, skills, and training	Working age adults with no or low qualifications	✓	✓	✓
	Children aged 16 and over who are not in full-time education (school or school level)	✓	✓	✓
	Proportions of those aged under 21 not successfully applied for/entered higher education	✓	✓	✓
	School performance data (key stages)	✓	✓	✓
	Primary school children with English as an additional language	✓		
	School absence rate (primary, secondary)	✓	✓	✓
	Contribution to final index (%)	15	13.5	13.5
Barriers to housing and services	Housing			
	Homelessness	✓	✓	✓
	Household overcrowding	✓	✓	✓
	Poor private sector housing ^a	✓		
	Difficulty of access to owner-occupation	✓	✓	
	Contribution to final index (%)	10	4.65	4.65
	Access to services			
	Access to a post office (General Post Office Counters)	✓	✓	✓
	Access to food shops	✓	✓	✓
	Access to a general medical practitioner	✓	✓	✓
	Access to a primary school	✓	✓	✓
	Contribution to final index (%)	10	4.65	4.65
Crime	Burglary	✓	✓	
	Theft	✓	✓	
	Criminal damage	✓	✓	
	Violence	✓	✓	
	Contribution to final index (%)	0	9.3	9.3
Living environment deprivation	Social and private housing in poor condition ^a	✓	✓	
	Houses without central heating	✓	✓	
	Air quality	✓	✓	
	Road traffic accidents involving injury to pedestrians and cyclists	✓	✓	
	Contribution to final index (%)	0	9.3	9.3
Totals	100	99.9		99.9

^aVariable is more or less the same but included under different domains between 2000 and 2004/2007. Note: indicator theme is used to cover a heading encompassing a number of separate indicators

Haynes, Jones, Lovett and Harvey (2005) have questioned the value of the “access” domain given that it was negatively correlated with the other five domains and thus may not actually provide a measure of deprivation. However, the “access” indicators have remained in all versions of the IMD for England. The Office of the Deputy Prime Minister (ODPM) commissioned an updating of the IMD 2000 for England, and the results were published as IMD 2004. This version of the IMD had some overlap with that of 2000

but differed in terms of the spatial units (changed to a unit which was not employed in elections and thus was assumed to be more stable), and the inclusion of two new domains covering crime and what its creators referred to as the “living environment.” The latter is limited to just four variables: air quality, houses without central heating, quality of private sector housing stock, and traffic accidents. There is no component of IMD 2004 which takes a broader vision of “environmental quality,” including appearance and

recreational value. The housing and access to services domains of IMD 2000 were combined into one domain for IMD 2004. Thus IMD 2004 had a total of seven domains. A significant consequence of this change was a reduction in the contribution to IMD coming from the housing and access to services domains. In IMD 2000, these two domains contributed 20 % of the final index, while in IMD 2004 this contribution was only 9.3 %. A further update was published as IMD 2007 which used data at the “Lower Layer Super Output Area” (areas having a mean population of 1,500), but this was largely in terms of new data rather than a significant alteration to the structure and methodology. The IMD has been used in a number of research projects, especially in terms of linking deprivation to health (see, e.g., Smith, Olatunde and White (2010)), but has not been without its critics (see Deas, Robson, Wong and Bradford (2003) for a critique of IMD 2000). For example, Adams and White (2006) questioned the IMD in terms of its predictive value when correlated with health indicators given that the IMD also has a health component. As a result, they suggested the removal of the health domain from IMD.

The latest version of the IMD is for 2010 (report published in 2011). IMD 2010 is broadly similar in terms of content and methodology to IMD 2007, and in most cases the data used to populate the indicators in IMD 2010 relate to 2008.

Cross-References

- ▶ [Deprivation](#)
- ▶ [Deprivation and Social Exclusion in Europe](#)
- ▶ [Human Development Index](#)
- ▶ [Index of Economic Well-being](#)

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Index of National Social Vulnerability (INSV)

- ▶ [Index of Social Progress \(ISP\)](#)
-

Index of Neighborhood Problems

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Synonyms

[Measure of neighborhood problems](#); [Neighborhood problems index](#)

Definition

This index was designed to measure the degree to which a respondent perceives problems in his or her neighborhood.

Description

The index was introduced in Michalos and Zumbo (2000). It was formed by calculating

respondents' average score on the following five items:

1. Misbehaving youth
2. People loitering on the streets
3. Neighborhood drug trafficking house
4. Run-down buildings and houses
5. Drug or alcohol abuse

On an 11-point ► **Likert** scale, a score of 0 would mean that the respondent perceived a particular item to be not a problem at all. A score of 10 would mean that the respondent perceived the item to be a big problem.

The average score for 734 respondents 18 years or older drawn from a random sample of households in Prince George, British Columbia, in November 1997 was 3.2, with a range from 0 to 10. The Cronbach reliability coefficient alpha was 0.89 (Michalos & Zumbo, 2000).

Cross-References

- [Community Quality of Life and Third Places in the USA](#)
- [Happiness](#)
- [Life Satisfaction](#)
- [Perceived Quality of Life](#)
- [Subjective Well-Being](#)
- [Victimization](#)

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Index of Progress

- [Progress Index](#)

Index of Quality of Regional Development

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Definition

The Index of Quality of Regional Development – QUARS *Indice di Qualità Regionale dello Sviluppo* – is a composite indicator tailored on Italian regions and based on the priorities set by Italian civil society network joining Sbilanciamoci! campaign.

The consultative process that led to the definition of the QUARS grants a strong legitimacy to the index that in this way overcomes a number of drawbacks due to the contribution of scholars alone. The inclusion of a large civil society coalition implies the lack of any particular interest and focuses its attention to the well-being for all citizens (Rondinella et al., 2011).

In particular, it is probably an example of best practice in representing and encouraging one of the finest expressions of democratic decision-making: ► [public participation](#).

Description

The Vision

Sbilanciamoci! involves associations, NGOs, and networks active on social issues, ► [solidarity](#), environment, civil rights promotion, ► [education](#) and ► [health](#) monitoring, consumer protection, and alternative economic activities, from fair trade to ethical banking. Since 2000 Sbilanciamoci! has proposed alternatives to the Italian budgetary policies, arguing for social and

environmental priorities. It pushes for a change in the perspectives behind public policies, proposing new economic and social priorities for a solid world in which more attention is given to people's rights and the environment instead of the needs of a market economy.

From the analysis of public policies rose the need for a tool able to measure and compare well-being among Italian regions that led in 2003 to the definition of a new index. A shared vision of sustainable well-being came directly from the previous work on public policies. In Sibilanciamoci!'s approach sustainable well-being is typified by a good quality of development. Quality of development, in turn, characterizes a region in which the economic dimension (production, distribution, ► **consumption**) is compatible with environmental and social factors, where the social and health services adequately meet the needs of all the citizens; where participation in cultural life is alive; where economic, social, and political rights and equal opportunities are guaranteed; and where environment is protected.

The Index

The building of the QUARS is the fruit of a consultation process which involved the organizations joining the campaign.

The consultation process led to the identification of seven dimensions and of a set of 41 variables that are representative, as much as possible, of the idea of sustainable well-being that animates the work of the campaign. The set is composed of variables of environmental, social, and economic type, divided into seven groups of the same importance. The seven groups are defined as follows:

1. *Environment*. Evaluation of the environmental impact deriving from the forms of production, distribution, and consumption and policies adopted to mitigate its effects
2. *Economy and labor*. Working conditions and ► **income distribution** guaranteed by the economic system
3. *Rights and citizenship*. Accessibility of services and ► **social inclusion** of young people, the elderly, underprivileged people, and immigrants

4. *Education and culture*. Participation in the school system and quality of the structures, education of the population, and cultural activities
5. *Health*. Quality and efficiency of the service, proximity, and general health of the population
6. *Gender equity*. Absence of barriers, based on sex, against taking part in economic, political, and social life
7. *Democratic participation*. Political and social participation of citizens and elements of good governance

A complete list of indicators and sources is available in Table 1.

It must be noticed that it has been decided not to include GDP per capita among the variables. GDP is in fact definitely relevant for reaching a higher well-being, but it is a means to improve the different aspects that characterize development, it is not considered an end in itself.

The Aggregation Methodology

The aggregation process is made through a standardization of raw values then aggregated with a simple arithmetic average.

A transformation of this kind has been applied to each indicator.

$$z_{i,j} = (x_{i,j} - \mu_i) / \sigma_{xj} \quad (1)$$

where $x_{i,j}$ is the value of indicator j for the region i ; μ_i is the average value of indicator j ; σ_{xj} is the standard deviation for the indicator j ; $z_{i,j}$ is the standardized value of indicator j for the region i .

The aggregation is done in two steps. Standardized indicators are firstly merged into the seven dimensions by using a simple arithmetic mean. Secondly, the arithmetic mean of the seven dimensions forms the QUARS.

We took the decision to adopt the technique of equal weighting, which implies that the subjective component of construction of indices would lie exclusively in the choice of variables and their distribution among the selected dimensions (Salzman, 2003).

Assigning weights to the variable, it would have taken time to the discussion surrounding

Index of Quality of Regional Development, Table 1 Dimension, variables, and sources

Dimensions	Variables	Indicators	Source
Environment	Population density	People per km ²	ISTAT
	Air pollution	CO ₂ in millions of Mg	ISTAT
	Water and soil pollution	Hundreds of kilograms of fertilizers (nitrogen, phosphorus, and potassium) per ha of agricultural area	ISTAT
	Environmental illegality	Synthetic index on environmental crime, cycle of the cement, and waste treatment	Legambiente
	Waste collection	Share of municipal waste being collected separately	ISTAT
	Renewable energy	GWh produced from renewable energy sources (hydroelectric, wind, photovoltaic, geothermal, biomass)	ISTAT
	Protected areas	Protected areas as percentage of regional surface	ISTAT
	Eco-management	Synthetic index on purchases by the government of high-energy efficiency and eco-label products, use of organic food in canteens, use of recycled paper in public offices, Agenda 21 implementation process, drafting reports on the state of Italy, mobility manager , energy manager	Legambiente
	Organic farming	Simple average between area of organic farming over total of agricultural area and number of biological farms over total of farms	AIAB
Economy	Sustainable mobility	Synthetic index: accidents, public transport, CO ₂ emissions from transport, and use of rail, cars, and bikes to go to work or school	Sbilanciamoci!
	Job precariousness	Simple average between percentage of temporary workers, illegal workers, and parasubordinate workers	Sbilanciamoci!
	Unemployment	Ratio between persons actively seeking employment and the total workforce	ISTAT
	Income inequality	Gini index	ISTAT
Rights	Poverty	Percentage of population living below the poverty line	ISTAT
	Housing	Number of evictions per 1,000 households	Italian Home Office
	Access to basic services	Synthetic index measuring the difficulty for households in reaching some key services, developed by Sbilanciamoci! on ISTAT data	ISTAT
	Social assistance	Synthetic index created from data on sociomedical care for seniors, adults, children, and drug addicts	Nuovo Welfare
	Risk of exclusion for disabled	Number of cooperatives of type B per 100,000 inhabitants	ISTAT
	Migrant integration	Synthetic index prepared by Sbilanciamoci, which considers family reunions, school participation, and attractiveness of a region	Sbilanciamoci!
	Social exclusion of younger generation	High school dropout rates	ISTAT
Health	Integrated home assistance	Share of seniors assisted at home	ISTAT
	Cancer screening	Percentage of women undergoing screening for early detection of cancer of the female genital tract	ISTAT
	Waiting lists	Innovative procedures adopted in relation to waiting list	Cittadinanzattiva
	Hospital migration	Share of hospitalizations occurred in the region other than that on residence	ISTAT
	Public health system satisfaction	Synthetic index of satisfaction of medical, nursing, and health services provided by the NHS	Sbilanciamoci!
	Avoidable mortality	Average of per capita number of days of life lost due to causes that may be actively opposed by the public health system and that led to death at an age between 5 and 69 years	ERA

(continued)

Index of Quality of Regional Development, Table 1 (continued)

Dimensions	Variables	Indicators	Source
Education	School ecosystem	Synthetic index on the quality of structures for primary and secondary education	Legambiente
	Secondary education	High school participation among people aged between 14 and 18	ISTAT
	Higher education	Share of graduated population	MIUR
	Students migration	Share of undergraduates studying in the region of residence	ISTAT
	Libraries	Number of libraries in the region every 100,000 inhabitants	ISTAT
	Theater and music	Per capita expenditure for theatrical and musical performances	ISTAT
Gender equity	Family advice bureaux	Number of family advice bureaux every 20,000 inhabitants	Italian Department of Health
	Female activity rate	Spread in males and female activity rates	ISTAT
	Political participation	Share of female advisers in the regional Council	Sbilanciamoci!
	Municipal crèches	Places in municipal crèches for every 100 children between 0 and 2 years	CDIA ^a
Participation	Participation to organized civil society	Persons aged 14 and over who participated in meetings of voluntary associations in support of civil rights, peace, and environment among the total population aged over 14	ISTAT
	Number of voluntary associations	Voluntary organizations per 10 thousand inhabitants	ISTAT
	Ombudsmen	Number of ombudsmen in the region	Sbilanciamoci!
	Newspaper diffusion	Circulation of daily newspapers (nonsporting)	AUDIPRESS
	Political participation	Turnout at the polls	Italian Home Office

^aCentro nazionale di documentazione e analisi per l'infanzia e l'adolescenza (Sbilanciamoci, 2006)

the choice of the indicators and would have allowed the inclusion of not very significant indicators with a small weight.

Moreover it appeared too complicated to assign numerical values to social and environmental phenomena. The use of multivariate techniques would have led to a selection dependent on the correlation among variables but not taking into consideration the political or social relevance that some variables have. Since the choice of producing a composite indicator is motivated mainly by the need of having an easily communicable tool, of attracting the attention of public, media, and policy makers, it was considered fundamental to be able to analyze all the indicators separately, and excluding some of those for “statistical reasons” would have reduced very much the “political information” (Segre & Villa, 2007).

Robustness and sensitivity of the index has been assessed in Segre, Rondinella and Mascherini (2010).

The Consultation Process

In order to select the subgroups and the single indicators, a three-phased consultation was carried out.

The *first phase* was dedicated to the definition of the subgroups. It started from a version of the index developed by think tank Lunaria that appeared still weak and inconsistent. A few meetings were held with representatives of the organizations, with the coordinators and with a few professors of the scientific entourage of the campaign in order to reach an initial framework of analysis represented by seven dimensions: environment, economy, social inclusion, education,

health, gender equity, and democratic participation. This first framework of analysis was not constrained by data availability. Through these dimensions the Sbilanciamoci! campaign tried to identify the priorities required to characterize a territory by a sustainable level of well-being.

During the first phase it clearly emerged that the final objective of building a composite indicator by a civil society campaign was the provision of a tool for policy makers. It was soon clear that the QUARS should consider relevant issues able to represent policy objectives at local or national levels. On one side the QUARS represents an alternative vision of development with respect to the “economy-centered” ones; on the other side it is an indicator on which policy makers can intervene quite directly. This approach allows the identification of direct interlocutors to the campaign as well as to the local civil society in Italian regions that can use the QUARS as an advocacy tool. Yet it has been decided to exclude public expenditures (they were included in the first version of the index) since it provides no information on how the money has actually been spent, including in the index only output measures.

The choice between producing a composite index or maintaining the whole set of variables was discussed as well during the first phase. Although the cons of merging all the variables into a single number have been presented, the effectiveness of a tool able to compare Italian regions and to produce rankings was the most important aspect taking into consideration the aims of a civil society campaign that needs to spread as much as possible the ideas underlying the index. A single number, as well as the seven subgroups which are composite indicators themselves, easily attracts the attention of the media, of the public, and of policy makers. A single number to refer to is more effective in advocacy activity and can become an identification mark for the campaign. The analysis of all the variables separately is still produced in order to show the components contained in the general results.

The *second phase* was dedicated to more restricted meetings between the authors and experts on different issues in order to choose indicators to be actually used for a good

definition of the latent construct. A list of hundreds of available regional statistics was produced by the authors in order to carry out this phase and select the indicators out of the available ones. All data considered come from institutional sources and are freely available. Not all of them refer to the same year and a few are not updated every year. For the index calculated in 2009, years are ranging between 2005 and 2009 with a couple of exceptions. Since it was already clear that the methodology for aggregating the composite indicator would be of equal weighting (see Sect. 3.4), the experts were asked to provide a set of variables able to cover the relevant aspects of each issue trying to find as well an equilibrium among the selected indicators.

The consultations have led also to the definition of some sub-composite indicators still based on official data. Some of them are indexes produced by civil society organizations, such as the indexes of eco-mafia, eco-management, and school ecosystem produced by Legambiente or social assistance by Associazione Nuovo Welfare and healthcare waiting lists by Cittadinanzattiva, while some others were elaborated only for the QUARS, like the ones on mobility, on labor precariousness, and on migrants’ integration.

The *third and last phase* of the consultation process was aimed at the finalization of the set of variables. In this phase all the organizations and the experts surrounding the campaign were asked their opinions on the overall structure and on the internal equilibrium of the index. The final output of the consultation is a set of 41 variables grouped into seven categories. During the last three years, a few small changes were made to the set because either better sources for the same variable became available (e.g., income distribution) or because some data were not published anymore, thus obliging to remove the variable (e.g., of cinemas in small towns).

Results

As mentioned above, the consultation process led to the identification of the set of variables listed in Table 1. Every year the researchers of the Sbilanciamoci! campaign update the database with the most recent data and compute the

QUARS and the composite indicators for each dimension. They hence produce and deliver a yearly report containing an extensive analysis of the results obtained. The report, in Italian only, is downloadable on the campaign website www.sbilanciamoci.org. During the last years this material has been used by the campaign to disseminate work in order to animate the debate on well-being measures and to pressure national and local governments and institutions towards the adoption of a wider set of indicators. Among the outcomes of this activity is the inclusion of the QUARS within best practices at EU's Beyond GDP conference (Goossens, 2007) and the participation at the OECD's Global Project. The adoption of QUARS by regional governments in Lazio (the region of Rome) and Tuscany in their documents for economic planning (DPEFR – Documento di Programmazione Economica e Finanziaria Regionale) shows the possibility of applying QUARS for public regional reporting. The application of QUARS by official regional reporting indicates its policy relevance and its usefulness as a policy tool. Local authorities are asked to intervene in all aspects addressed by QUARS. In this way the QUARS is meant to support decision-making on each dimensions as well as each one of the variables. During next years it remains to be seen how much QUARS will guide the decision-making of the regional government of Lazio and Tuscany. Following the approach of the QUARS, well-being analysis has been carried out for some subregional levels: Sbilanciamoci! has been asked to assess the quality of development of the provinces of Rome, Trento and Ascoli Piceno, and the municipality of Arezzo.

Cross-References

- ▶ [Active Citizenship](#)
- ▶ [Aggregation Problem](#)
- ▶ [Composite Index Construction](#)
- ▶ [Italy](#)
- ▶ [Regional Analysis](#)
- ▶ [Social Activism](#)
- ▶ [Z-Scores](#)

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Index of Social Progress (ISP)

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Synonyms

[Index of National Social Vulnerability \(INSV\)](#);
[Weighted Index of Social Progress \(WISP\)](#)

Definition

The *Index of Social Progress (ISP)* was developed in 1973 by Richard J. Estes of the University of Pennsylvania School of Social Policy & Practice (Estes & Morgan, 1976). The index has been continuously refined by Estes, and today, the ISP, and its statistically weighted version, the "WISP," is used to assess the changing capacity of countries to satisfy the basic social and

material needs of their populations. While not a direct measure of ► **quality of life**, the purpose of the index is to assess the extent to which societies are succeeding in reducing the barriers to development that impede people's ability to improve their overall life quality.

Description

Historical Background

Initially referred to as the “Index of National Social Vulnerability” (INSV), the ISP was developed at the invitation of the then Secretary-General of the International Council on Social Welfare, Mrs. Kate Katzki, who, like many of her peers in the international development community, wanted an approach to development assessment that would place greater emphasis on the sociopolitical aspects of development rather than on its more narrow economic components. Until that time, economic measures such as “gross national product” (GNP), “gross domestic product” (GDP), and “per capita income” levels (PCI) served as proxy variables for “social” development with the assumption being that increases in national economic performance would, in turn, bring about increases in national and international levels of social development. This belief prevailed despite widespread criticisms of the use of economic metrics as substitute measures of social development and the obvious contradictions that existed in many countries concerning their often dramatically different levels of economic and social development, e.g., the persistence of high levels of income poverty in the United States despite the country’s position as the world’s leading economy and one of its top per capita income earners, the widening wealth gap between and within rich and poor countries, and the increasing levels of ► **poverty** and social degradation found in countries located in developing Africa, Asia, and Latin America.

The general lackluster performance of the United Nations’ *First Development Decade* (1961–1970), which promoted the attainment of a narrow set of economic objectives within poor

countries, added to recognition of the need for a new approach to development planning and assessment. Agreement also existed in the international community that the new approach to development planning would need to place people and their development at the center of future development initiatives (Bauer, 1966; Campbell, Converse, & Rodgers, 1976; Sheldon & Moore, 1968; Streeten, 1981). Thus, an increasing number of development scholars called for a new set of social metrics that could be used in both establishing and measuring the goals of “social” development, including goals associated with advancing the quality of life for people everywhere (Drenowski & Scott, 1966; Mc Granahan, Richard-Proust, Sovani, & Subramanian, 1972; United Nations, 1975). These efforts were reinforced by the rapidly emerging ► **social indicators** and social reporting movements of Europe (Noll, 1996; Organization for Economic Cooperation and Development [OECD], 1999) and the United States (Bell, 1969; Morris, 1979; U.S. Department of Health, Education and Welfare [USDHEW], 1969).

Conceptualization and Operationalization of the ISP

The ISP was developed between 1973 and 1987 in seven distinct phases. Each phase required the use of both statistical tools and extensive in-person consultations with development specialists working in various world regions. Each phase also drew heavily on the rapidly expanding literatures on the social aspects of development as well as reviews of empirical reports of development outcomes prepared by specialized agencies of the United Nations, the World Bank, the International Monetary Fund, and a wide range of internationally focused nongovernmental organizations (e.g., Amnesty International, Freedom House, Save the Children, World Resources Institute).

Phase 1: Development of the ISP’s Conceptual Model (1973–1975)

Referred to initially as the *Index of National Social Vulnerability* (INSV), conceptualization

of the INSV took place in three subphases: (a) reviews of the relevant literatures dealing with the social, political, and economic aspects of national and international development; (b) consultations with international experts in each of the model's then six major development sectors; and (c) the selection of a limited number of countries for a trial testing of the partially operationalized INSV. The conceptual and empirical decisions associated with this phase of the INSV's development are described in Estes and Morgan (1976).

Phase 2: Expansion of the Original Index of National Social Vulnerability (INSV) from Six to Ten Sectors and the Renaming of the Index (1976–1978)

In response to the preliminary findings obtained from the country, regional, and global analyses undertaken during Phase 1, the decision was made to expand the number of subindexes used to form the general model from six to ten and, in turn, to rename the INSV the "Index of Social Progress" (ISP, WISP). The revised model was both more comprehensive in conceptualization and, through its renaming, emphasized the positive, rather than negative, components of development.

Phase 3: Identification and Collection of a Data Bank of Social Indicators for Use in Operationalizing the ISP (1978–1981)

A number of subphases also were associated with the operationalization of the ISP during its third phase of development: (a) the identification of a large pool available social indicators from which a more discrete set of indicators would be selected; (b) obtaining access to these indicators, the majority of which existed only in nonelectronic format; (c) determining a methodology for resolving issues of missing, inaccurate, heavily biased, or incomplete data; and (d) the identification of a provisional methodology for combining the separate indicators into subindexes and, in turn, into a composite ISP.

Phase 4: Establishment and Refinement of a System of Indicator, Subindex, and Composite Index Statistical Weights (1981)

Completion of Phase 4 of the ISP's development occurred in two steps: (a) the application

of traditional ► index construction tools (mostly ► factor analysis and linear regression techniques) to the now computerized data bank of approximately 200 social indicators and (b) in consultation with development specialists, finalization of a system of statistical weights that would be assigned to each indicator, subindex, and to the aggregate ISP. A complete listing of the individual indicators used in the operationalization of the preliminary ISP is reported in Appendix A of Estes (1984, pp. 169–180); the statistical weights used in computing indicator, subindex, and aggregate ISP scores are reported in Appendix B of Estes (1984, pp. 181–196). A listing of current ISP indicators and subindexes, as well as their statistical weights, are summarized in Tables 1 and 2 of Estes (2010).

Phase 5: Application of the Preliminary ISP Model to Development Assessment to 107 Countries (1981–1983)

The first set of findings from the fully operationalized ISP and WISP are reported in Estes (1984). This volume reports detailed analysis of development trends for 107 countries for the 10-year period 1970–1980.

Phase 6: Application of the Refined ISP Model to a Representative Sample of 124 Countries (1983–1987)

Between 1983 and 1987, testing of slightly modified versions of the earlier ISP and WISP occurred in an analysis of the social development trends that occurred in 124 countries during the 14-year period 1970–1983 (Estes, 1988). At this stage, the ISP was fully stabilized and was judged to be a valid and reliable measure of national and international trends in social development over time.

Phase 7: Application of the ISP and WISP to 162 Countries Representing 95 % of the World's Population (1988–present)

The final, and now ongoing, phase in the ISP's development involves the application of the ISP to 162 countries representing approximately 95 % of the world's population (Estes, 1998, 2010). With the exception of a few substitutions of selected indicators, since 1988, the structure of the ISP has remained virtually unchanged.

Index of Social Progress (ISP), Table 1 Indicators on the weighted index of social progress (WISP) by Subindex, 2011 (41 indicators and 10 subindexes)

Education subindex (*N* = 4)

Public expenditure on education as percentage of GDP, 2002–2005 (+)

Primary school completion rate, 2005 (+)

Secondary school net enrolment rate, 2000–2007 (+)

Adult literacy rate, 2000–2007 (+)

Health Status Subindex (*N* = 6)

Life expectation at birth, 2007 (+)

Infant mortality rate, 2007 (-)

Under-five child mortality rate, 2007 (-)

Physicians per 100,000 population, 2000–2007 (+)

Percent of population undernourished, 2006 (-)

Public expenditure on health as percentage of gross domestic product, 2006 (+)

Women Status Subindex (*N* = 5)

Female adult literacy as percentage of male literacy, 2000–2007 (+)

Contraceptive prevalence among married women, 2000–2007 (+)

Maternal mortality ratio, 2005 (-)

Female secondary school enrollment as percentage of male enrolment, 2000–2007 (+)

Seats in parliament held by women as percentage of total, 2007 (+)

Defense Effort Subindex (*N* = 1)

Military expenditures as percentage of GDP, 2005 (-)

Economic Subindex (*N* = 5)

Per capita gross national income (as measured by PPP), 2006 (+)

Percent growth in gross domestic product (GDP), 2000–06 (+)

Unemployment rate, 2006 (-)

Total external debt as percentage of GDP, 2007 (-)

GINI index score (most recent year) (-)

Demography Subindex (*N* = 3)

Average annual rate of population growth, 2000–2006 (-)

Percent of population aged <15 years, 2006 (-)

Percent of population aged >64 years, 2006 (+)

Environmental Subindex (*N* = 3)

Percentage of nationally protected area, 2004 (+)

Average annual number of disaster-related deaths, 2000–2008 (-)

Per capita metric tons of carbon dioxide emissions, 2004 (-)

Social Chaos Subindex (*N* = 6)

Strength of political rights, 2008 (-)

Strength of civil liberties, 2008 (-)

Number of internally displaced persons per 100,000 population, 2006 (-)

Index of Social Progress (ISP), Table 1 (continued)

Number of externally displaced persons per 100,000 population, 2006 (-)

Estimated number of deaths from armed conflicts (low estimate), 2002–2005 (-)

Perceived corruption index, 2008 (+)

Cultural Diversity Subindex (*N* = 3)

Largest percentage of population sharing the same or similar racial/ethnic origins, 2007 (+)

Largest percentage of population sharing the same or similar religious beliefs, 2007 (+)

Largest share of population sharing the same mother tongue, 2007 (+)

Welfare Effort Subindex (*N* = 5)

Age First National Law – old age, invalidity and death, 2009 (+)

Age First National Law – sickness and maternity, 2009 (+)

Age First National Law – work injury, 2009 (+)

Age First National Law – unemployment, 2009 (+)

Age First National Law – family allowance, 2009 (+)

Index of Social Progress (ISP), Table 2 Statistical Weights Used in Constructing the Weighted Index of Social Progress¹

$$\text{WISP2009} = \{ [(\text{Factor 1})^* .697] + [(\text{Factor 2})^* .162] + [(\text{Factor 3})^* .140] \}$$

where:

$$\begin{aligned} \text{Factor 1} &= [(\text{Health}^* .92) + (\text{Education}^* .91) + (\text{Welfare}^* .72) + (\text{Woman}^* .91) + (\text{Social Chaos}^* .84) + (\text{Economic}^* .71) + (\text{Diversity}^* .64) + (\text{Demographic}^* .93)] \\ \text{Factor 2} &= [(\text{Defense Effort}^* .93)] \\ \text{Factor 3} &= [(\text{Environmental}^* .98)] \end{aligned}$$

For purposes of comparability across time, the same statistical weights were used in all five of the study's time periods.

Similarly, the same system of statistical weights has been applied to the ISP during each application since 1984.

The ISP and WISP Today

In their present construction, the ISP and WISP consist of 41 social indicators divided across ten development sectors: Educational Status (*N* = 4),

(continued)

Health Status ($N = 7$), Women Status ($N = 5$), Defense Effort ($N = 1$), Economic Status ($N = 5$), Demographic Trends ($N = 3$), Environmental Status ($N = 3$), Social Chaos ($N = 5$), Cultural Diversity ($N = 3$), and Social Welfare Effort ($N = 5$). All 41 of the ISP indicators have been established to be valid indicators of social development, and indeed, most are used regularly by other scholars in their analyses of national, regional, and worldwide development.

Country Selection

Countries selected for analysis using the ISP satisfy at least three of the following four criteria: (1) a population size of at least or approaching one million persons, (2) a reasonable degree of political stability such that timely and reliable data collection is possible, (3) the availability of reliable and valid data for at least the indicators included in the WISP, and (4) for purposes of comparative analysis, prior inclusion in the author's earlier studies of national, regional, and global social development trends. Countries with missing, inadequate, incomplete, or seriously distorted data on three or more of the ISP's indicators are excluded from analyses unless reasonable estimates of the missing data can be made.

The WISP currently monitors the social development performances of 162 countries located in all six of the world's major continental groupings (Africa [$N = 50$], Asia [$N = 45$], Europe [$N = 36$], Latin America [$N = 26$], North America [$N = 2$], and Oceania [$N = 3$]). The index also reports development trends for all four of the United Nations-designated socioeconomic development groupings, i.e., Developed Market Economies (DMEs, $N = 34$), Commonwealth of Independent States (CISs, $N = 21$), Developing Countries (DCs, $N = 66$), and Least Developing Countries (LDCs, $N = 41$). For a complete listing of the 162 countries included in the most recent WISP analysis, see Estes (2010), Table 3. The table organizes these countries by geographic

region and subregion and by socioeconomic development grouping.

Data Sources

The majority of the data used to operate the WISP are obtained from annual reports supplied by individual countries to specialized agencies of the United Nations, the ► [United Nations Development Programme](#), the World Bank, the Organization for Economic Cooperation and Development (OECD), the International Social Security Association (ISSA), and other major international organizations. Data for the Environmental Subindex are obtained from the World Resources Institute (WRI), the ► [United Nations Commission on Sustainable Development](#) (UNCSD), and the World Bank. Data for the Social Chaos Subindex are obtained from Amnesty International (AI), Freedom House (FH), the International Federation of Red Cross and Red Crescent Societies (IFRCRC), the Stockholm International Peace and Research Institute (SIPRI), and Transparency International (TI). Data for the Cultural Diversity Subindex are gathered from the CIA *World Factbook*, the *Encyclopedia Britannica*, and from the contributions of independent scholars working in the fields of comparative language, religion, and ethnography.

Time Frames

Index and subindex findings are reported separately for each of five time periods, i.e., 1970, 1980, 1990, 2000, and 2010; thus, the data from the ISP provides a cross-sectional data set of the "state" of world social development for more or less the same set of countries over a 40-year time period.

Levels of Analysis

Data using the WISP are reported at four levels of analysis: (1) development trends occurring for the world as a whole ($N = 1$, Fig. 1), (2) development trends occurring at the continental [$N = 6$, Fig. 2] and subregional levels [$N = 19$, Fig. 3], (3) development

Index of Social Progress (ISP), Table 3 Countries grouped by continents and subcontinents marked by development groupings, 2009 ($N = 162$)

AFRICA ($N = 50$)	ASIA ($N = 45$)	LATIN AMERICA ($N = 26$)	EUROPE ($N = 35$)
East Africa ($N = 15$)	East Asia ($N = 7$)	Caribbean ($N = 7$)	East Europe ($N = 10$)
Burundi (LDC)	China (DC)	Bahamas (DC)	Belarus (CIS)
Comoros (LDC)	Hong Kong SAR (DME)	Belize (DC)	Bulgaria (CIS)
Djibouti (LDC)	Japan (DME)	Cuba (DC)	Czech Republic (DME)
Eritrea (LDC)	Korea, North (DC)	Dominican Republic (DC)	Hungary (DME)
Ethiopia (LDC)	Korea, South (DME)	Haiti (LDC)	Moldova (CIS)
Kenya (DC)	Mongolia (DC)	Jamaica (DC)	Poland (DME)
Madagascar (LDC)	Taiwan (DME)	Trinidad & Tobago (DC)	Romania (CIS)
Malawi (LDC)			Russian Federation (CIS)
Mauritius (DC)	South Central Asia ($N = 13$)	Central America ($N = 7$)	Slovak Republic (DME)
Mozambique (LDC)	Afghanistan (LDC)	Costa Rica (DC)	Ukraine (CIS)
Rwanda (LDC)	Bangladesh (LDC)	El Salvador (DC)	
Somalia (LDC)	Bhutan (LDC)	Guatemala (DC)	North Europe ($N = 10$)
Tanzania (LDC)	India (DC)	Honduras (DC)	Denmark (DME)
Uganda (LDC)	Iran (DC)	Mexico (DME)	Estonia (CIS)
Zambia (LDC)	Kazakhstan (CIS)	Nicaragua (DC)	Finland (DME)
	Kyrgyzstan (CIS)	Panama (DC)	Iceland (DME)
Middle Africa ($N = 7$)	Nepal (LDC)		Ireland (DME)
Angola (LDC)	Pakistan (DC)	South America ($N = 12$)	Latvia (CIS)
Cameroon (DC)	Sri Lanka (DC)	Argentina (DC)	Lithuania (CIS)
Central African Rep (LDC)	Tajikistan (CIS)	Bolivia (DC)	Norway (DME)
Chad (LDC)	Turkmenistan (CIS)	Brazil (DC)	Sweden (DME)
Congo, Rep (DC)	Uzbekistan (CIS)	Chile (DC)	United Kingdom (DME)
Congo, DR (LDC)		Colombia (DC)	
Gabon (DC)	South East Asia ($N = 9$)	Ecuador (DC)	South Europe ($N = 8$)
	Cambodia (LDC)	Guyana (DC)	Albania (CIS)
North Africa ($N = 6$)	Indonesia (DC)	Paraguay (DC)	Croatia (CIS)
Algeria (DC)	Lao, PDR (LDC)	Peru (DC)	Greece (DME)
Egypt, UAR (DC)	Malaysia (DC)	Suriname (DC)	Italy (DME)
Libya (DC)	Myanmar (LDC)	Uruguay (DC)	Macedonia, TFYR (CIS)
Morocco (DC)	Philippines (DC)	Venezuela (DC)	Portugal (DME)
Sudan (LDC)	Singapore (DME)		Slovenia (CIS)
Tunisia (DC)	Thailand (DC)		Spain (DME)
	Viet Nam (DC)		
Southern Africa ($N = 6$)		NORTH AMERICA ($N = 2$)	West Europe ($N = 7$)
Botswana (DC)	West Asia ($N = 16$)	Canada (DME)	Austria (DME)
Lesotho (LDC)	Armenia (CIS)	United States (DME)	Belgium (DME)
Namibia (DC)	Azerbaijan (CIS)		France (DME)
South Africa (DC)	Bahrain (DC)		Germany (DME)
Swaziland (DC)	Cyprus (DC)		Luxembourg (DME)
Zimbabwe (DC)	Georgia (CIS)	OCEANIA ($N = 4$)	Netherlands (DME)
	Iraq (DC)		Switzerland (DME)
West Africa ($N = 16$)	Israel (DME)	Australia-New Zealand ($N = 2$)	
Benin (LDC)	Jordan (DC)	Australia (DME)	
Burkina-Faso (LDC)	Kuwait (DC)	New Zealand (DME)	
Cape Verde (LDC)	Lebanon (DC)		

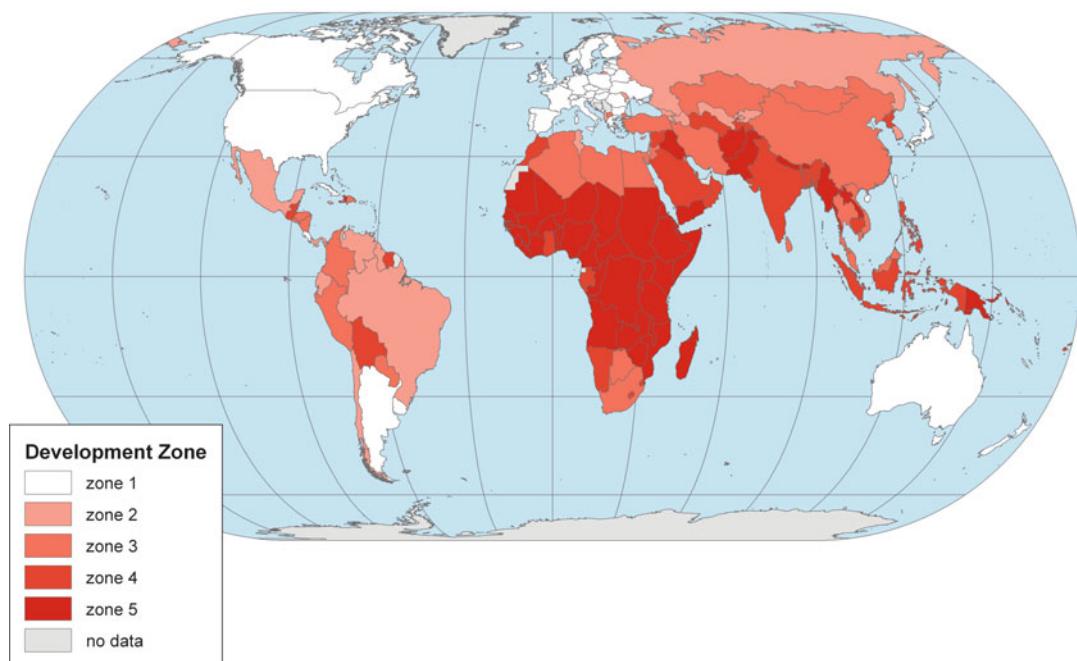
(continued)

Index of Social Progress (ISP), Table 3 (continued)

AFRICA (N = 50)	ASIA (N = 45)	LATIN AMERICA (N = 26)	EUROPE (N = 35)
Cote d'Ivoire (DC)	Oman (DC)	Melanesia (N = 2)	
Gambia (LDC)	Qatar (DC)	Fiji (DC)	
Ghana (DC)	Saudi Arabia (DC)	Papua-New Guinea (DC)	
Guinea-Bissau (LDC)	Syria (DC)		
Guinea (LDC)	Turkey (DME)		
Liberia (LDC)	Yemen (LDC)		
Mali (LDC)			
Mauritania (LDC)			
Nigeria (DC)			
Niger (LDC)			
Senegal Leone (LDC)			
Sierra (LDC)			
Togo (LDC)			

DME developed market economy ($N = 34$), CIS commonwealth of independent states ($N = 21$), DC developing countries ($N = 66$), LDC least developed countries ($N = 41$)

Distribution of WISP Scores by Country & Development Zone, 2009

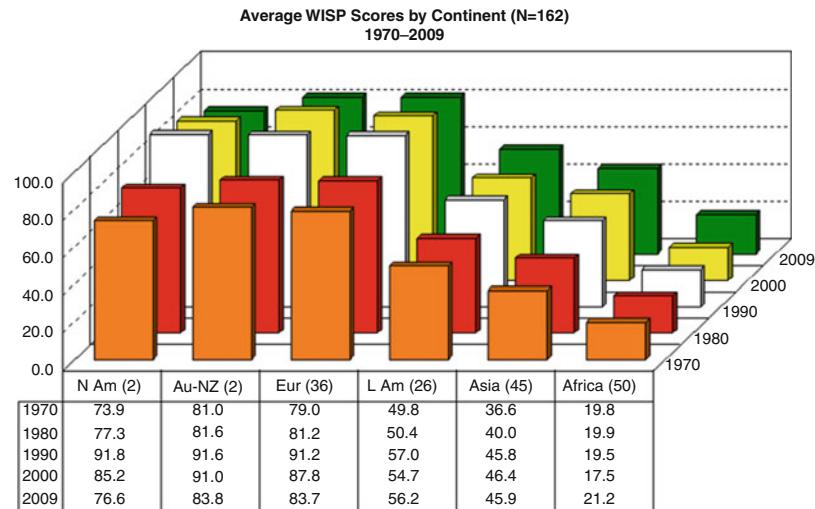


Index of Social Progress (ISP), Fig. 1 Distribution of WISP scores by country and development zone, 2009 (Estes, 2010)

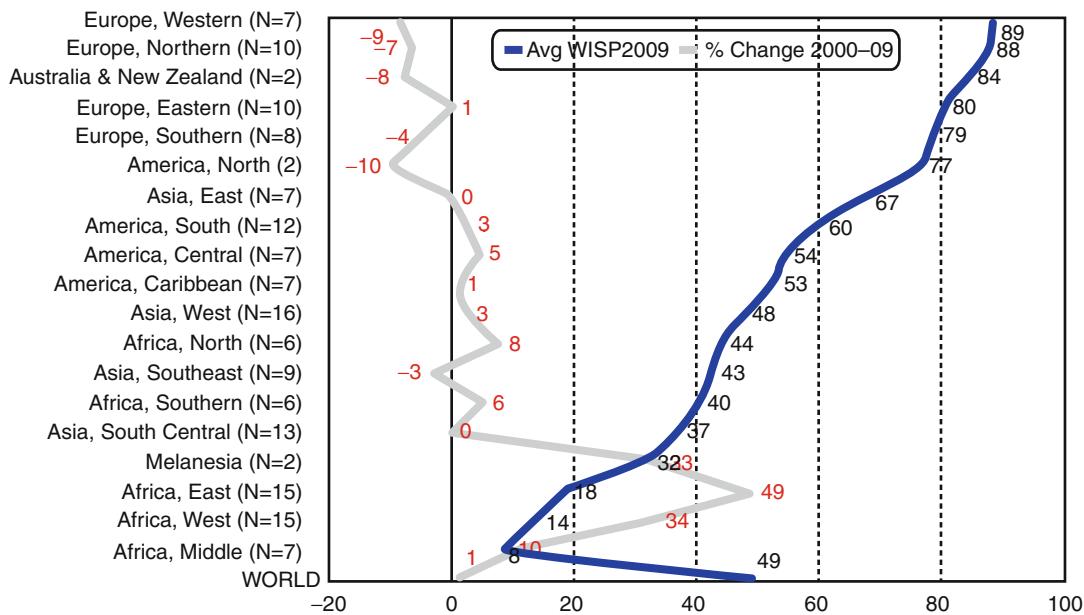
trends occurring by socioeconomic development grouping ($N = 4$, Fig. 4), and (4) development trends occurring within each of the 162 countries included in the current

database (Fig. 5 illustrates the use of the WISP for national analysis using China's development trends for the 30-year period 1980–2010).

Index of Social Progress (ISP), Fig. 2 Average WISP scores by continent (N = 162), 1970–2009 (Estes, 2010)



Rank Ordered Average Regional WISP Scores & Percent Change in WISP, 2000–09 (N=19 Regions)



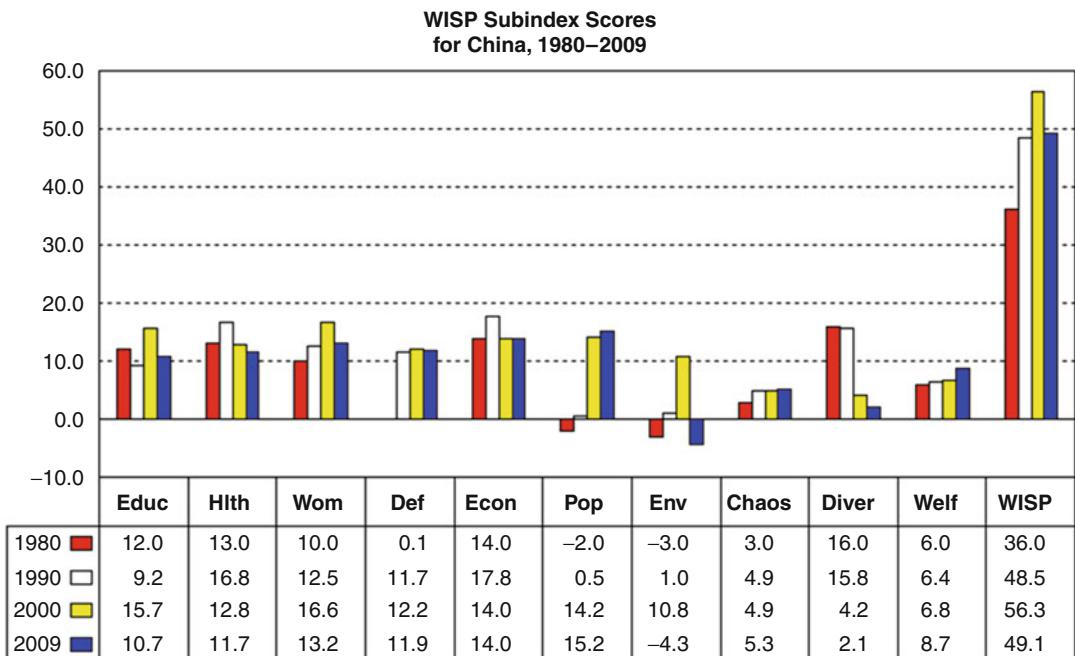
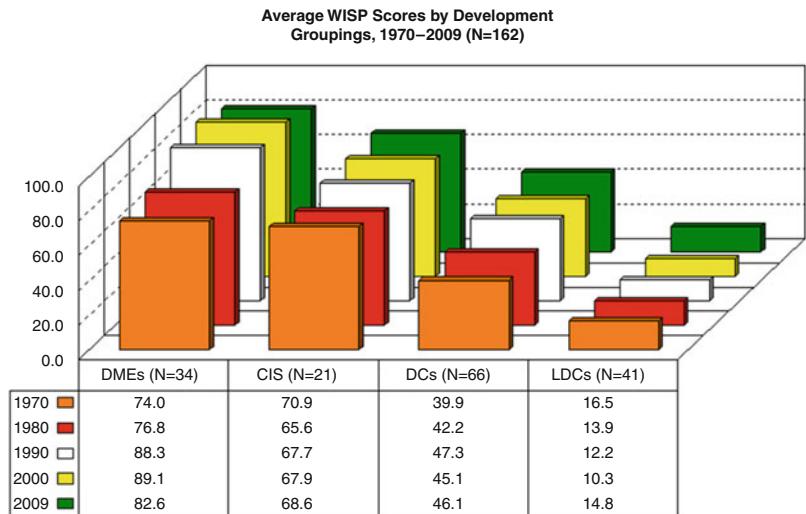
Index of Social Progress (ISP), Fig. 3 Rank-ordered average regional WISP scores and percent change in WISP, 2000–2009 (N = 19 Regions) (Estes, 2010)

The WISP Versus Other Measures of Social Progress

The Index of Social Progress differs from other measures of social development in the number and representativeness of the indicators used in

its construction. In all cases, the ISP is judged to be a more comprehensive instrument for assessing changes in social development than other indices, more so than those centered on the use of gross national product (GNP), gross domestic product (GDP), per capita income level

Index of Social Progress (ISP), Fig. 4 Average WISP scores by development groupings, 1970–2009 (N = 162) (Estes, 2010)



Index of Social Progress (ISP), Fig. 5 WISP subindex scores for China, 1980–2009 (Estes, 2010)

(PCGNI), or Gini coefficients as the basis of cross-national comparisons. The ISP also is regarded as a more robust social metric for assessing national and international development trends than the frequently cited United Nations Development Programme's (UNDP) three-item “► Human Development Index” (HDI).

Viewed from the above perspective, the analytical strengths of the ISP and WISP rests on the comprehensiveness of its subindexes and their capacity to be aggregated and disaggregated to suit the needs of particular data users and policy analysts. Further, the majority of indicators included in the WISP are now used by other

quantitatively oriented investigators of social development in their studies of more specialized aspects of comparative development – as examples see the “► Happy Planet Index” of the New Economics Foundation, the “► Global Peace Index” of Vision of Humanity, and the “Social Well-Being Index” developed by Robert Cummins and his colleagues at Deakin University in Australia and used in many other regions of the world.

Cross-References

- Cultural Diversity
- Developing Countries
- Health
- Physical Quality of Life Index (PQLI)
- Social Welfare
- Subjective Well-Being

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Index of Sustainable Economic Well-Being

- Alberta's Genuine Progress Indicator
- Qualitative Research and Content Validity

Index of the Condition of Children

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Definition

- **Indicators** of ► child well-being are statistical measures of the physical, social, psychological, and cognitive/educational development of children and youth, such as children's school engagement and skills, pro-social and risky behaviors, mental health, and health status.
- **Indices** of child well-being aggregate individual indicators of child well-being into a single number. By incorporating varied measures, indices can make it easier to summarize the status of children, if they are carefully constructed.

Description

Indices of ► [child well-being](#) aggregate individual indicators of child well-being into a single number. By incorporating varied measures, indices can make it easier to summarize the status of children, if they are carefully constructed. However, details about the individual components of well-being are necessarily collapsed in an index.

Indicators of child well-being are statistical measures of the physical, social, psychological, and cognitive/educational development of children and youth, such as children's school engagement and skills, pro-social and risky behaviors, mental health, and health status. Over the past several decades, the number of indicators of child well-being has increased dramatically, as policy makers and the general public have seen the value of identifying and monitoring indicators of ► [well-being](#) (Ben-Arieh, 2008). While tracking a wide range of well-being measures provides useful information for policy and practice, the plethora of different measures has also led to information overload. Policy makers and the public often note that they find it easier to track a single number, or a small set of numbers, that "tell the story." Also, it has been argued that it would be easier to hold policy makers accountable if a single, summary number were used, and it would be more feasible to compare trends across demographic groups and different localities using an index rather than multiple indicators. Thus, there has been increased interest in composite or summary measures that distill many indicators into a more readily apprehended "score," or index.

While there are many approaches to building indices, all indices are comprised of multiple measures (Fernandes et al., 2011). Beyond this, currently used indices vary greatly. Some are based on data that happen to be available, such as those from administrative records, while other indices are derived from developmental research. Some indices use macrodata (data for geographic areas such as nations), while others employ microdata (data specific to individual children). Some indices describe local areas like states, while other indices depict national or cross-national

patterns. And some indices use just a handful of variables, while others incorporate dozens of measures.

One primary distinction is between indices that focus solely on the well-being of the child, and those that also incorporate measures of the contexts in which children develop. Indices that combine child well-being and contexts generally reflect a "rights of the child" perspective, while indices that focus exclusively on measures of child well-being itself typically reflect a child development perspective. A child development perspective is careful to distinguish between the factors that affect children's development and well-being (independent variables), and the child's well-being in and of itself (the dependent variable, or child outcome); only indicators that assess the child's well-being are included. Under the child development perspective, measures of context (such as community crime, family income, health care, school quality) may be included in separate indices that assess and monitor the factors that affect children's development and well-being. Within indices that reflect the "rights of the child" perspective, in contrast, well-being and contextual indicators are combined without distinction.

Indices have been constructed using both "macrodata" and "microdata" (data at the level of the society/country or at the level of the child). A macroindex might summarize data for a country, by combining, for example, the country's rates of mortality, school completion, ► [disability](#), early childbearing, ► [delinquency](#), and exercise, and monitor trends in this index over time. A microindex, however, would combine data for each individual child in a particular representative survey – for example, each child's educational, health, behavioral, and psychological well-being – and then those child-level scores would be aggregated to create an index for the country. Macro indices are more common, as they can be constructed from administrative data and data taken from various surveys. Microindices, however, require rich data about a representative sample of individual children across all domains of interest from a single data source. To provide data over time, moreover, it is

necessary to repeat the survey at regular intervals, including the same variables measured in the same way over time.

As the child indicators field has evolved from a focus restricted to measures of child survival to a focus on a more comprehensive notion of well-being, a number of challenges have been recognized. One is the need both to conceptualize and to measure positive outcomes, not simply negative ones. There is wide agreement, for example, that to be considered thriving, it is not sufficient for a youth simply to avoid negative behaviors or conditions such as delinquency, depression, and ► **school dropout**. It is also important for a child to have character strengths, to exhibit positive behaviors such as volunteering, and to be happy (Lippman et al., 2011). Many indicator systems (and indices) have relied heavily on existing administrative data, which tend to assess threats to positive development, such as mortality, injury, and suicide, and include little information about positive outcomes. In contrast, the assessment of positive developmental characteristics has lagged behind or, at best, has been addressed simply as the inverse (or absence) of negative behaviors. For instance, a positive trend is defined as a decline in delinquency. Given the absence of positive indicators, current indices are necessarily slanted toward the negative.

Along with the evolving focus on positive well-being, there has been an increased interest in subjective measures of well-being. Such measures generally require reports from children or youth about their own perspectives on the quality of their lives. In a related vein, there is increasingly an explicit focus on the well-being of the child “as a child,” not simply on those factors that are associated with “well-becoming” (that is, measures of child development that tend to be related to success in adulthood). Thus, the ► **happiness** and well-being of a child today is considered important, along with their prospects for future success.

Scales are often confused with indices, as both are multi-item measures that focus on a common construct. However, scales must demonstrate adequate ► **internal consistency** and homogeneity in the assessment of a specific construct, and

generally have ordinal, if not ratio, mathematical properties. Indices, by contrast, are simple composites, weighted or unweighted, of conceptually related constructs. Hence, the elements of an index may be only moderately correlated. For example, a child’s reading comprehension may be only moderately correlated with his or her physical health, although both contribute to a child’s well-being.

Indices can be readily created, using a number of alternative methodologies. However, there is little consensus on the pros and cons of different approaches, even though seemingly minor methodological decisions (e.g., weighting, intermediate calculation of domain and sub-domains, and cut-offs) can have substantial implications (Moore et al., forthcoming).

One methodological hazard concerns selection of the particular components of an index (often driven more by convenience or politics than by theory or empirical understanding). It is common to simply add up available items and use the sum as an index. As a richer array of indicators becomes available, indices are generally carefully sorted conceptually into domains and sub-domains, which are then summed. Missing values may also be an issue, though new statistical procedures (e.g., multiple imputation) can address minor problems of missing data.

Decisions must also be made about how to combine the items into an index. Scores on the component indicators can be normalized, or otherwise transformed; thresholds or “cut-offs” can be determined for what constitutes positive or negative well-being on each indicator. If cut-offs are used, the choice of cut-offs can have a major impact on the specific findings and the message conveyed by the index. For example, a cut-off for optimal well-being could be set very high, so that few children reach it, or it could be set low, so that most children appear to attain it. As yet, consensus on how to arrive at cut-offs is lacking. However, if scores are tracked over time, change in well-being can be assessed, despite uncertainty about cut-offs (as long as the same indicators are monitored over time and the same procedures are repeated).

Another decision goes beyond the choice of measures, to the choice of domains and sub-domains. In general, the domains of child well-being tend to mark a common set of constructs. Sub-domains within each of these larger domains may also be defined and measured. Scores for each sub-domain are then aggregated to the domain level and from there to the index level.

Commonly identified child well-being domains and possible sub-domains include:

Physical well-being and safety:

1. Overall and oral health status and weight
2. The presence of chronic or limiting conditions such as ► [asthma](#) or diabetes
3. Health-promoting behaviors, such as adequate sleep, nutrition, ► [exercise](#), and time watching television

Psychological well-being:

1. Internalizing behavior, such as ► [anxiety](#) or depression
2. Diagnosed conduct/behavior problems
3. ► [Self-concept](#), self-worth

Social well-being:

1. Parent-child relationships and positive communication
2. Engagement in sports, club activities, and community work
3. Positive social behaviors, such as respect, getting along with other children, empathy, resolving conflicts, and negative social behaviors, such as arguing, ► [bullying](#), disobedience, and stubbornness

Cognitive and educational well-being:

1. Academic achievement, grade repetition
2. Learning difficulties and diagnosed learning disabilities
3. ► [School engagement](#), including caring about school, completing homework, and reading for pleasure

The way these and other choices are made can dramatically affect results. Since indices are promoted as a means for assessing and monitoring the well-being of children, maximum care and transparency in the methods used for constructing indices, and candid disclosure of their limitations are needed. For these reasons, reifying any one index or methodology appears premature. Indices are bound to reflect, in some degree, the political

and cultural context of the country (or state/province/city) for which they are developed, as well as the maturity of the data system in that country.

Despite these caveats, well-being indices have broad appeal to the public and to policymakers. Both groups seek to distill a great deal of complex information into a concise “score,” often accompanied by a “ranking” among peers (countries, for example), or a comparison of performance over time. As such, indices can help galvanize public will and political action around child well-being, even if they do so at the expense of a more nuanced understanding.

Additionally, indices may motivate examination of their separate components (domains or sub-domains). If treated as a dependent variable, an index of child well-being can be used to explore the contextual factors related to trends in child well-being, for example, economic variables (at either a microlevel or macrolevel), recent immigration, regional factors, or policy changes. However, such analysis depends upon a conceptual framework that separates well-being from context.

Cross-References

- [At-risk Children](#)
- [Child Health and Development](#)
- [Child Well-being](#)
- [Indicator Development and Construction](#)
- [Parent-Child Relationship\(s\)](#)
- [Personal Well-being](#)
- [Positive Indicators of Child Well-being](#)
- [Quality of Life Index](#)
- [School and Student Engagement](#)
- [Self-Concept](#)
- [Social Indicators](#)
- [Social Indicators Research](#)

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Index of Well-Being in Europe

- [Synthetic Indicators of the Quality of Life in Europe](#)

India, Quality of Life

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Definition

India is a country located in South Asia. It is the seventh-largest country in the world by geographical area; the second-most populous country, with over 1.2 billion inhabitants; and the most populous democracy in the world. India's history can be traced back to the third millennium BC, and its contribution to the cultural, artistic, and spiritual heritage of mankind is quite remarkable. During the last decades, Indian economy underwent a strikingly fast and massive development. Health, education, and general standard of living substantially improved as well throughout the country. Since the majority of the Indian population resides in rural areas, QOL must be differentially discussed and evaluated for rural and urban India.

Description

- [Quality of life \(QOL\) refers to evaluation of general well-being of an individual. In the](#)

following article, QOL has been discussed with a broader perspective in the context of India. QOL in India will be viewed from various angles starting from sociodemographic variables such as age, sex, income, education, health-related quality of life (HRQOL), and spirituality's connection with QOL.

Given the importance of QOL in today's fast-paced environment, various people have tried defining QOL in their own way. For example, In the Indian context, QOL was viewed as a value-laden concept (Mukherjee, 1980) because it refers to attributes that are desirable or undesirable selected out of all the qualitative attributes and then duly quantified indivisible elements which are involved with or respond to the life process of human being. He defined QOL from two perspectives: firstly, the social indicators research, which considers the elites' valuation of what the people need, and secondly, the conventional quality of life research, which studies what people want, in order to improve their quality of life. Ishitani, Murakami, and Kishi (1992) talked of QOL in terms of determinants considered important in the Indian setting. According to them, QOL is a multidimensional concept with domains of multidimensionality consisting of (i) physical status and functional abilities, (ii) psychological status and well-being, (iii) social interaction, and (iv) economic status.

There are multiple factors which act as indicators of QOL. This is also evident from the measures of QOL developed in India. For example, Saxena, Chandiramani, and Bhargava (1998) developed a 100 items QOL questionnaire in Hindi as part of the WHOQOL project which involved construction of a new tool for assessing QOL in developed and developing countries. A total of four domains were identified for assessing QOL – physical, psychological, social, and environmental health. QOL scale was also developed by Jamila, Warrier, and Samsananda (1999) that measured QOL with regard to three aspects – physical, psychological, and social circumstances. Recently, a QOL questionnaire was validated for cancer patients in India (Vidhubala et al., 2011), and 11 factors emerged that contributed to the QOL, namely, general

well-being, physical well-being, psychological well-being, family relationship, sexual and personal ability, cognitive well-being, optimism and belief, economical well-being, information support, patient-physician relationship, and body image.

QOL and its determinants especially hold a great importance in India, where population increases at an exponential rate. In such a scenario, providing people with ample educational and employment opportunities and basic facilities like housing and water-electricity supply, dealing with obsolete customs like dowry and female feticide, and providing health-care facilities to people (especially at the rural level), the government of India has a daunting challenge ahead. However, the limited research available on demographic variables affecting QOL in India is an indicator of the fact that this is something which is still not catching the eye of people as there are more urgent targets to be met.

Quality of life and an individual's level of happiness go hand in hand. Heylighen (1992) talked of sense of ► **happiness** as nearly synonymous with life satisfaction, quality of life, or even "self-actualization." In a very recent poll (2011) conducted by Marketing and Development Research Associates on 2,104 people (aged 25 years and above) for Outlook on 16 Indian states, top five reasons that were attributed to happiness were success at work, academic success, good health in the family, healthy bank balance, and buying a house. Stress topped the list for contributing to unhappiness. The top five factors that triggered stress were reportedly pollution (77 %), traffic jams (75 %), lack of electricity/water (66 %), not meeting professional targets (57 %), and a hectic lifestyle (54 %). About one fourth of the people blamed government for their unhappiness.

India's economy was ranked tenth in the world by nominal GDP and was declared as the fourth largest by the purchasing power parity (PPP), according to a report released by International Monetary Fund in January 2011. In spite of this economic progression, India continues to be infested by the problems of unemployment, incidence of malnutrition, etc. In such a scenario,

it would not be hard to imagine the trickle effect on rural population, which constitutes more than one third of the entire population of the country. A study done in rural Orissa by Mishra, Mishra, and Tripathy (2008), the average score for QOL was reported as 3.27 with 2.93 (very poor) to 4.12 (poor). The reasons reported were poor infrastructure with poor or little access to economic resources and modern amenities. Another Orissa study evaluated the QOL for 120 households (Beck & Mishra, 2010). The research study was conducted in one of the most primitive tribal groups of Orissa, Oraon. The overall QOL was reported as low due to prevailing poverty, poor educational status, poor sanitary and housing facilities, less possession of assets and vehicle, deficient food intake, poor fuel and energy availability, and low per capita income. A low QOL found in two studies from the state of Orissa is endorsed by Pradhan (2008) findings, wherein he studied the quality of life index (QOL) across India by applying totally fuzzing analysis (TFA), taking into account dimensions such as income, education, health, employment, and infrastructure. As per his empirical findings, the QOL was substantially high in Goa, Kerala, Punjab, Tamil Nadu, Maharashtra, Haryana, Himachal Pradesh, and Mizoram. It was quite low in Bihar, Orissa, Madhya Pradesh, Uttar Pradesh, and Assam. The other states were in the average level of quality of life. Coming to North-East India, QOL was substantially high in Mizoram, Sikkim, and Nagaland and considerably low in Assam, Tripura, Arunachal Pradesh, Meghalaya, and Manipur.

Gender perception on QOL is also considered an important variable when various factors for assessing QOL are taken. A study by Chandra, Satyanarayana, Satishchandra, Satish, and Kumar (2009) studied gender differences among 109 participants infected with HIV, using (World Health Organization Quality of Life) WHOQOL-HIV 120 instrument. Of the 29 facets of QOL, men reported significantly higher QOL in the following facets – positive feeling, sexual activity, financial resources, and transport, while women reported significantly higher QOL on the forgiveness and blame facet. Of the six domains

of QOL, men reported better quality of life in the environmental domain, while women had higher scores on the spirituality/religion and personal beliefs domain. Gender differences in QOL examined by the WHOQOL-HIV group (2004), which included two centers in India, showed that men reported poorer physical well-being and level of independence, while women reported poorer environment, social support, and spirituality. Subsequent studies in India, using the WHOQOL-HIV BREF, showed that women had significantly lower QOL scores than men despite having less advanced disease (Kohli, Sane, Kumar, Paranjape, & Mehendale, 2005a, 2005b). Researches in India have also been conducted which study gender differences with respect to HRQOL. The HRQOL was studied broadly in a North Indian study by Joshi, Avasthi, and Kumar (2003). Nearly 200 elderly participants were evaluated taking into account their age, education, income, and occupation. The findings reported a low HRQOL with increasing age, lesser personal income, unemployed workers (skilled and unskilled). Those with less education and illiterates also had a lower HRQOL.

► **Spirituality** is another talked of term affecting QOL. In a study of 50 cancer afflicted patients, spiritual satisfaction was endorsed as a very important construct by nearly two third of the people when asked about the issues reflecting their QOL (Chaturvedi, 1991). In another study of cancer patients, spiritual well-being was also considered as an important component of the quality of life of advanced cancer patients, and was closely related to the physical and psychological symptoms of distress (Kandasamy, Chaturvedi, & Desai, 2011).

A huge disparity is known to exist where the QOL is concerned for the rural and urban India, with urban India faring better. For example, the literacy rate in rural India is 68.91 %, whereas that of urban India is 84.98 % (Census of India website. Office of the Registrar General, & Census Commissioner, 2011). The incidence of malnutrition, anemia, low birth weight, etc. continue to thrive in the economically poorer sections of society, whereas the urban are being inflicted with problems of obesity, diabetes, and

other lifestyle-related diseases. According to NFHS-3 (National Family Health Survey), 2005–2006, nearly 81 % of rural children in the age group 6–35 months were anemic as compared to 72 % in urban areas. Moving onto the infrastructure or the facilities available, certain factors are considered accountable like sanitation, clean drinking water supply, and availability of electricity, when speaking of QOL. However, according to DLHS-3 (District Level Household and Facility Survey), 2007–2008, it was seen that rural India was lacking far behind these basic amenities as compared to their urban counterparts. Whereas 92 % of urban households had electricity supply, the figure drastically fell to 60 % for the rural households. Only one third of the rural population had access to toilet facility, whereas more than double (80 %) urbanites had toilet availability. Majority of the urban women (71 %) had hospital deliveries, whereas majority of the rural women (61 %) had home deliveries. Considering the situation, it is not hard to imagine the struggle rural people have to go through in their day-to-day lives and, thus, their QOL as compared to their urban counterparts.

To conclude, QOL in India is dependent upon several factors. As India is fast becoming a globally active nation, an upheaval is expected at all fronts be it social, economic, or political. A fine balance needs to be struck so that progress is made at all levels without affecting the QOL of its people. Policymakers in India also need to focus on QOL at two levels – urban and rural. More research is needed in all quarters on improving the QOL for people. While forming strategies for a healthier nation, the government of India must give equal importance to all areas of health, education, basic facilities, etc. India is on its path of becoming a global economy, and an improved QOL for its people will only aid India in achieving its goal faster.

Cross-References

- Happiness
- Quality of Life
- Spirituality

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Indicator Development and Construction

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Definition

The indicator development and construction refer to the analytical tools and technical strategies aimed at developing and constructing quality-of-life indicators.

Description

In order to develop and construct quality of life indicators, a particular path leading from *concept* to *measures*, to *syntheses*, to *interpretation* has to be followed.

In this perspective, the path requires the identification of

- The concepts to be measured and monitored and their conceptual dimensions
- The ambits (domains) in which the concepts are observed and monitored

Indicator Development and Construction,**Fig. 1** Monitoring matrix

	CONCEPTS ↓	DIMENSIONS ↓	LIFE DOMAINS (AMBITS) ↓											
			1	2	3	4	5	6	7	8	9	10	11	12
Quality of life	Living conditions													
	Subjective well-being													
	...													
	...													

- (c) The indicators to be developed and constructed (including their synthesis and the perspectives through which the indicators should be observed and the consistent organization of the monitoring process), and
- (d) Interpretative/explanatory models, which actually link obtained results to the previously defined concept

Defining Indicators

The Concepts and Their Dimensions

Since the concept of quality of life is complex and in order to overcome partialities and incompleteness, the adopted conceptual framework should define and allow the complexity to be read, a multidimensional and comprehensive definition able to conciliate micro (individual) and macro (societal) level.

The Ambits to be Monitored

The relevant concepts and their dimensions have to be assessed and observed within each *life domain* (ambit). Life domains represent segments of the reality in which fundamental concepts should be observed and monitored. They typically are households and families, labor market and working condition, income and standard of living, housing, health, transport, environment, leisure and culture, social security, participation, crime and safety, education, and so on.

The Definition/Selection of Indicators

The *indicators* represent the observable elements to be defined for each conceptual dimension and each ambit/domain.

This process leads to the composition of a [conceptual] matrix, which for its characteristics

and possible application can be defined *monitoring matrix* (Fig. 1).

In that matrix, not each combination of conceptual dimension and ambit (cell) will be covered by indicators.

Perspectives and Organization of the Monitoring Process

In order to respect the complexity of reality, through a comprehensive approach, developing and constructing quality of life indicators should take into account different *monitoring perspectives*. Each perspective requires a particular *monitoring organization* and allows comparisons made for:

- The same reality across time (years, months, etc.), i.e., *time perspective*. This perspective requires an organization in terms of cadence (rate) and continuity through which indicators are collected and updated; indicators will not have the same rate but will be updated with reference to the permanence of the measured phenomenon.
- The same dimensions between areas (regions, provinces, etc.), i.e., *territorial perspective*. This perspective requires an organization in terms of size of the monitored area; the size is related to the institutional/organizational level on which the decisional system (policy) is sized. National level is certainly the most relevant. It should be taken into account that observing a wide territory does not entail that a lower level is necessarily covered. Beyond statistical representativeness, the conceptual model (in terms of dimensions and/or indicators) and the observation approach need to be reviewed and adapted in order to monitor the lower level (e.g., province, city, etc.). Consequently, the approach aimed at reaching

smallest area estimations from representative data collected in wider areas appears questionable. Projects calibrated on smallest areas should be urged and encouraged.

- The time between groups (genders, generations, etc.), i.e., *group perspective*. This perspective requires an organization in terms of sample of observed individuals.

From the analytical point of view, the perspectives can be combined.

The perspectives help in understanding the relationship between the concepts and the different components, in order to understand what ambits can be related to policy actions (*system analysis*).

Selection of Indicators Different issues need to be addressed in order to select indicators, especially when this is carried out into a complex system allowing the accomplishment of functions like monitoring, reporting, and accounting. Michalos (in Sirgy et al., 2006) identified 15 different issues related to the combination of social, economic, and environmental indicators. As Michalos asserts, the issues collectively yield over 200,000 possible combinations representing at least that many different kinds of systems (Sirgy et al., 2006).

Dealing with these issues is merely a technical problem to be solved by statisticians or information scientists. On the other side, the construction of indicators of well-being and quality of life is essentially a political and philosophical exercise, and its ultimate success or failure depends on the negotiations involved in creating and disseminating the indicators, or the reports or accounts that use those indicators (Michalos, in Sirgy et al., 2006).

Within a system, we consider also the difficulties related to the availability of indicators (across time and space) and in harmonizing different data sources and levels of observation.

Quality of Indicators Many international institutions, like World Bank & UNESCO (Patel, Hiraga, Wang, Drew, & Lynd, 2003) and Eurostat (2000a, b), tried to identify the attributes of *quality* that indicators (and approaches

aimed at their management) should possess and need to be considered in the process of developing of new indicators or selecting available indicators:

Methodological Soundness This characteristic refers to the idea that the methodological basis for the production of indicators should be attained by following internationally accepted standards, guidelines, or good practices. This dimension is necessarily dataset-specific, reflecting different methodologies for different datasets. The elements referring to this characteristic are (i) concepts and definitions, (ii) scope, (iii) classification/sectorization, and (iv) basis for recording. Particularly important is the characteristic of *accuracy and reliability*, referring to the idea that indicators should be based upon data sources and statistical techniques that are regularly assessed and validated, inclusive of revision studies. This allows accuracy of estimates to be assessed. In this case, accuracy is defined as the closeness between the estimated value and the unknown true population value but also between the observed individual value and the “true” individual value. This means that assessing the accuracy of an estimate involves analyzing the total error associated with the estimate: sampling error and measurement error.

Integrity Integrity refers to the notion that indicator systems should be based on adherence to the principle of objectivity in the collection, compilation, and dissemination of data, statistics, and results. The characteristic includes institutional arrangements that ensure (i) professionalism in statistical policies and practices, (ii) transparency, and (iii) ethical standards.

Serviceability Comparability is a particular dimension of serviceability. It aims at measuring the impact of differences in applied concepts and measurement tools/procedures.

- *Over time*: referring to comparison of results, derived normally from the same statistical operation, at different times.
- *Between geographical areas*: emphasizing the comparison between countries and/or

regions in order to ascertain, for instance, the meaning of aggregated indicators at the chosen level.

- *Between domains:* This is particularly delicate when involving subjective measurement (e.g., cultural dimensions).

Accessibility Accessibility relates to the need to ensure:

- (i) Clarity of presentations and documentations concerning data and metadata (with reference to information environment: data accompanied with appropriate illustrations, graphs, maps, and so on, with information on their quality, availability and – eventual – usage limitations)
- (ii) Impartiality of access
- (iii) Pertinence of data
- (iv) Prompt and knowledgeable support service and assistance to users

In other words, it refers also to the physical conditions in which users can obtain data: where to go, how to order, delivery time, clear pricing policy, convenient marketing conditions (copyright, etc.), availability of micro or macro data, various formats (paper, files, CD-ROM, Internet, and so on), etc.

Prerequisites of Quality Although they do not represent a dimension of quality in itself, the “prerequisites of quality” refer to all those (institutional or not) preconditions and background conditions allowing quality of statistics.

In other words, indicators construction is not simply a technical problem but should become part of a larger debate concerning how to construct indicators obtaining a larger legitimacy to be promoted. These prerequisites cover the following elements:

- (i) Legal and institutional environment, allowing:
 - (a) Conceptual framework to be defined
 - (b) Coordination power within and across different institutions to be framed
 - (c) Data and resources to be available for statistical work
- (ii) Quality awareness informing statistical work

Indicators' Benchmarks The identification of indicators should be accompanied by the identification of benchmark for each indicator or the point to be monitored.

A benchmark serves as a reference point in determining the current situation or position relative to the stated objective. In this perspective, a benchmark establishes the point from which measurements can be made. Indicators identify what will be measured.

The reference point could be represented by specific best practices or by comparison of current performance with previous performance and desired norms.

Benchmarking is the systematic process, which is useful for monitoring and securing continual improvement. It allows:

- Priorities to be established
- Better practices to be defined
- Impacts to be evaluated
- Awareness among the stakeholders to be aroused

The benchmark value is not always easy to be identified and requires a consensus not easy to be reached.

The use of benchmarks plays an important role in the ambit of a program development. Used in combination with the program objectives, they provide the basis for program accountability.

The Interpretative and Explanatory Models

The frame described by the indicators should be aimed at drawing information and allowing explanations. Explanations are important not only for understanding phenomena but also for planning eventual policy intervention.

The conceptual models previously classified can be used, even though, as pointed out, in a complex perspective, including different perspectives of observation.

For example, each conceptual model allows the level of subjective well-being to be explained. However, in order to have a comprehensive interpretation of subjective well-being, also the other models should be considered.

That means that, for example, the level of satisfaction expressed with reference to work condition should be read by evaluating at the

same time different represented explanatory dimensions, e.g., by the contextual conditions and by individual dispositions.

Challenges in Developing and Constructing Indicators

Monitoring well-being through indicators puts some issues representing at the same time a *challenge* (given by the *complexity*), a *risk* (given by the *over-reductionism*), and a *need* (represented by the *relativization*).

The key allowing the proper identification of new measures lies in the players' (statisticians, researchers, analysts, policy makers, and so on) capacity and awareness in considering the complexity, avoiding over-reductionism, and investigating relativization.

Complexity

Several methodological implications can be identified in developing indicators:

- Levels of observation, which can be (individuals, groups), and macro (communities, regions, countries, etc.): Macro does not correspond necessarily to sum of micros and micro does not necessarily reflect what emerges at macro level.
- Times of observation, which will not be necessarily equal for all selected indicators according to their different dynamics; in fact, some phenomena show "fast" dynamics while others show extended changing progression.
- Objective and subjective levels, which represent two aspects of the reality integrating each other.
- Internal level and external level, duality sensitive to individual observation; in fact, at individual level, the defined concepts should be observed at both "external" (e.g., objective living conditions, equity, and sustainability of those conditions) and "internal" (e.g., subjective evaluations about the living conditions, subjective perceptions about equity, and sustainability of living conditions) level.
- Classifying indicators in terms of input and output aspects is difficult to accomplish; in

fact, some aspects could be classified at the same time (or in subsequent times) as input or output; families' lower expenses for foodstuffs could represent an output indicator related to a short-term situation but could represent also an input indicator toward a change (worsening?) in family members' health status.

- The transition from quantity to quality paradigm implies a consistent choice of the indicators, this means, for example, turning an indicator of quantity like "life expectancy" to an indicator of quality like "healthy life expectancy."

Making Relative

The indicators selection implies a reflection about objectives of their adoption (monitoring, comparing and benchmarking among territories, supporting and evaluating policy decisions, etc.).

In particular, that reflection requires considering two related indicators' characteristics: *consistency* with reference to concepts and *adequacy* with reference to the territory (country, region, province, etc.).

Well-being definition, for example, finds a wide agreement (integration between living conditions and subjective well-being). Its operationalization (in terms of indicators) should take into account the definition's declension in the territorial ambit in which the observation is made. Consequently, different areas could adopt different indicators in order to measure the same concept.

This could introduce problems in the process of comparing different areas, by taking into account that they will be compared with reference to the concept not with reference to single indicators (comparing synthetic indicators).

Relativization involves also the well-being concept to measure and monitor and should urge better policies. Let us show a simple and simplified example: how to interpret a region's high value produced by the ratio *number of hospital bed/dimension of population*? At a first glance, a high level could reveal a region paying attention to needs and requirements of population's health. A later look could be alarming: Does the high number of available hospital beds fit a real need of that territory? In so, the interpretation could

lead to particular evaluation of policy decisions. The territory's need, for example, could be related to particular pathologies: The policy action could have been directed toward other domains (e.g., environment). So, proposing city mobility compatible with a healthy environment allows air quality and life style to be improved, allowing a healthy life and hopefully a lower need of hospital beds.

Reductionism

Reductionism is certainly unavoidable, since it is actually impossible to pull the image and a story from a pure observation of and completely stackable on reality.

On the other side, it is dangerous concentrating just on few elements and statistically inferring from them the sufficiency of the reduced observation.

In fact, statistically a high correlation between two indicators does not authorize to do without one among them. Such kind of decision implies the notion according to which indicators showing high correlation are actually measuring the same concept's component.

The range of such kind of decisions is in reality: The relationship between two indicators (e.g., number of firemen and amount of damages in a fire) can be high but mediated by a third one (e.g., dimension of the fire). If the nature of the third indicator changes, the relationship between the other two indicators changes or disappears, even though they will continue to describe, autonomously, the reality. If, by observing the previous high correlation, we excluded one of the two indicators, doing without one of them could deny ourselves precious pieces of the whole picture (as represented by the indicators).

This means that having a solid conceptual model allows the relationships between concepts and indicators to be identified and interpreted.

From the technical point of view, reductionism refers to the possibility of synthesizing the collected information.

The systematic identification of elementary indicators, identified in terms of concepts and domains, allows a downright "system of indicators" to be constructed (more complex than

a simple "set of indicators," which are not always related to a conceptual framework).

In some cases, it will be necessary to define syntheses. The synthesis concerns different aspects of the system (Maggino, 2009) and needs analytical procedures to be defined.

(i) *Synthesis at micro level.* This synthesis requires synthesizing elementary indicators by creating synthetic scores. In case of subjective indicators, this synthesis has been widely and deeply studied and found strengthened analytical techniques (coming from the psychometric statistics) along with other advanced techniques based upon discrete mathematics. Each synthetic score involves indicators referring to only one conceptual dimension (in other words, the indicators are conceptually and statistically homogeneous).

(ii) *Aggregating units* (cases, subjects, etc.). This aggregation aims at mainly comparing macro units (social groups, age groups, geographic areas), with reference to [synthetic or not] indicators, as defined in the monitoring perspectives. This kind of synthesis is generally accomplished by applying very simple statistical instruments (e.g., average), which are very unsatisfying since they do not allow the phenomenon's distribution to be correctly represented and synthesized. A possible (not necessarily the best) solution is to report, for example, the percentage of a subgroup or a dispersion index (standard deviation or interquartile range).

(iii) *Synthesis at macro level.* This aggregation aims at creating complex indicators allowing the complexity to be managed. By drawing again the previous table, we can identify different syntheses:

- "By raw" (R), when synthesis concerns each [multidimensional] concept (e.g., "subjective well-being").
- "By column" (C), when synthesis concerns each ambit/domain. This kind of aggregation, referring to different concepts, is little recommendable since the score eventually produced is not interpretable.

- “By sub-column” (RC), when the synthesis concerns one concept (or dimension) and one single ambit/domain. This kind of aggregation produces a meaningful and interpretable measure.

Subsequent “higher level” syntheses could lead to the construction of *super-indicators*, difficult to interpret.

Technical Issues in Synthesizing Indicators

In order to better manage the complexity of measured data, analytical models are required for providing significant data aggregations at different levels in order to ensure correct and different comparisons, transversal (between groups, regions) and longitudinal at both micro and macro levels.

In other words, the complexity of this structure can be reduced by defining and applying additional models aimed at synthesizing basic indicators.

The construction of synthetic indicators should be consistent with the adopted measurement model. This means that the traditional distinction between formative and reflective is particularly important since aggregation of indicators has to be consistently accomplished. In other words, indicators can be aggregated into complex structure through a consistent methodology according to two different criteria: (i) *reflective criterion* and (ii) *formative criterion*. In both cases, the condensation of basic indicators, considered multiple measures, produces new synthetic values obtained by applying the appropriate aggregating model. Each synthetic indicator tries to reestablish the unity of the described concept described by the corresponding latent variable.

Reflective Criterion

Since the indicators are seen as functions of the latent variable, the procedure aimed at aggregating has to take into account the main specific properties of the reflective indicators, which can be synthesized as follows (Diamantopoulos & Winklhofer, 2001; Diamantopoulos and Siguaw, 2006):

- Indicators are interchangeable (the removal of an indicator does not change the essential nature of the underlying construct).

- Correlations between indicators are explained by the measurement model.
- Internal consistency is of fundamental importance: Two uncorrelated indicators cannot measure the same construct.
- Each indicator has error term (ε).
- The measurement model can be estimated only if it is placed within a larger model that incorporates effects of the latent variable.

As a result, the reflective criterion can be accomplished through a statistical approach consistent with the traditional specification used in *factor models*, where an observed measure is presumed to be determined by latent factors. The fundamental equation of the factor model (for m indicators) is the following:

$$\sigma_{x_i}^2 = \sum_{j=1}^m \lambda_{x_i \zeta_j}^2 + \delta_{x_i}^2$$

where

$\sigma_{x_i}^2$ total variance of indicator x_2

$\lambda_{x_i \zeta_j}$ factor loading of indicator x_i with reference to latent variable ζ_j

$\delta_{x_i}^2$ uniqueness (specific variance + error) of indicator x_i

Formative Criterion

Since the indicators are viewed as causing – rather than being caused by – the latent variable, the procedure aimed at aggregating has to take into account the main specific properties of the formative indicators, which can be synthesized as follows (Diamantopoulos & Winklhofer, 2001):

- The indicators are not interchangeable (omitting an indicator is omitting a part of the construct).
- The correlations between indicators are not explained by the measurement model.
- There is no reason that a specific pattern of signs (i.e., positive vs. negative) or magnitude (i.e., high vs. moderate vs. low), in other words, internal consistency, is of minimal importance: Two uncorrelated indicators can both serve as meaningful indicators of the construct.

- Indicators do not have error terms; error variance is represented only in the disturbance terms ζ .

As a result, the formative criterion can be accomplished through a statistical approach consistent with a principal components specification, where the latent variable is defined as a linear combination of basic (manifest) indicators:

$$\eta = \gamma_1 x_1 + \gamma_2 x_2 + \dots + \gamma_n x_n + \zeta$$

where

η latent variable

γ_i the expected effect of x_1 on η

ζ disturbance term

Traditionally, the reflective view is seen related to the development of scaling models applied especially in subjective measures (*scale construction*), whereas the formative view is commonly seen in the development of *synthetic indicators* based on both objective and subjective measurements.

In both cases, the aggregation of basic indicators, considered multiple measures, produces new synthetic values. Each synthetic indicator tries to reestablish the unity of the defined concept described by the corresponding latent variable.

Cross-References

- Conceptual Design of Indicators
- Multi-indicator Measures

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Indicator Development and Selection

► Indicator Methodology

Indicator Framework

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Definition

An indicator framework is a tool for organizing a set of statistical indicators in a way which can assist with their collection, presentation, communication, and interpretation.

Description

Many sets of statistical indicators are presented within a framework.

Frameworks have two main purposes.

At one level, frameworks can divide the concept one is trying to measure into manageable pieces. Rather than asking “How should we measure well-being?” one can use a presentational

framework to consider, separately, ways to measure more narrowly defined aspects of well-being in social, environmental, and economic areas, for example – such as health, air quality, or income. The choice of a view is largely a matter of presentational convenience; the view is a tool to help choose areas of concern and identify indicators, but it does not have to purport to be a model of a world in which the environment, economy, and society can be separated (Hall, 2005). Such a framework can help in the preparation and presentation of a set of indicators. It can also help to set out links between the different indicators. But it does not need to espouse a particular theory of chance.

At another level, a framework can appeal to a theory of change: some model of the way the world works. What causes changes in well-being, and how do changes in well-being impact on other aspects of people's lives, for example? There are many ways a framework might do this. One popular approach is to look at the pressure-state-response framework. Sometimes "driving force" is used instead of pressure. This framework is quite a popular way to present environmental indicators in particular, where indicators might be group according to whether they represent an environmental pressure (e.g., volume of annual greenhouse gas emissions), an environmental state (atmospheric concentration of greenhouse gases), or a response (proportion of electricity generated from renewable forms). See Food and Agriculture Organisation (FAO), 2012, for more information, for example.

Another framework that can be useful is to separate indicators according to whether they represent inputs, outputs, or outcomes of a policy process. Policy makers typically have direct influence over inputs (e.g., funding for health care) and less directly over outputs (e.g., numbers of patients treated in a hospital in a given time period). They often have much less influence over outcomes (e.g., changes in life expectancy) which are the net result of many factors that usually go well beyond the influence of a policy department or even a government (Organisation for Economic Co-operation Development) (OECD, 2006). Some policy

makers may query the value of outcome indicators because they are "not policy relevant." Others though counter by pointing out that there is little point in setting policies that do not ultimately impact on outcomes, and so it is vital to keep one eye at least on progress towards the outcomes one is seeking (Walker, 2005 talks about this).

Frameworks that are designed to demonstrate how the various aspects of progress put together and relate to one another are rather difficult to reach agreement on. In 2003, Professor Alex Michalos, from the University of Northern British Columbia, discussed the claim by Berger-Schmitt and Jankowitsch (1999) that "the indicator systems are missing a real theoretical foundation which defines the concept of welfare used and explains the relations between the various components" (p. 11). Professor Michalos noted that "since there is no generally accepted definition of a 'scientific theory,' this may not be a very serious complaint" (Michalos, 2003).

Some form of framework is useful for keeping a project manageable, from organizing initial discussions around indicator selection through to simplifying their presentation. But a theoretical framework, while useful, is not necessary.

There is no one international framework on which everyone agrees. Some international statistical initiatives, such as the United Nations Development Programmes (UNDP)' Human Development Index (HDI), consider only a very small number of concerns common to all nations and so take quite a narrow view of development. The HDI uses information about longevity, knowledge, and command over resources needed for a decent living (UNDP, 2012). Others use a larger number of issues, such as United Nations (UN) the Millennium Development Goals (UN, 2012). And it seems unlikely that any international agreement will be reached for a framework that will include all aspects of well-being that are important to any one country. Nor does it seem likely that there will be – in the near term at least – an agreed framework for measuring well-being or progress at the national level which is appropriate for every country (Walker, 2005).

Cross-References

- ▶ Definitional Framework for the Concept of Well-Being
- ▶ UNESCO Framework for Cultural Indicators

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Indicator Methodology

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Synonyms

Indicator development and selection;
Measurement models; Measurement strategies

Definition

The process, calculation methods, and inputs required for the development and analysis of indicators.

Description

Since the social indicators movement, different suggestions have been made over the process of developing indicators. The discussion here has largely drawn upon the four-step methodological process put forward by Wong (2006), that is, conceptual consolidation, analytical structuring, identification of indicators, and creation of an index. There are other ways to classify the process of indicator construction, for example, Zapf's (1981) six-step approach is a variant of splitting or combining the four steps rather than offering any substantive new ideas.

The first step is to clarify the basic concept which is to be represented by the analysis and to pinpoint the policy context and rationale against which the indicators will be used. The recognition of the basic conception is very important as it will lead to different indicator systems which represent different interests (Duvall & Sharmir, 1980). Many key concepts such as “social disadvantage,” “development potential,” and “quality of life” are subject to numerous interpretations and are thus essential to avoid any attempt of combining a set of possibly related statistics without any theoretical basis (Innes & Booher, 2000; Sawicki & Flynn, 1996; Wong, 2000). Since indicators tend to be proxy measures of some abstract concepts, it is inevitable that they are associated with some kind of social and economic theories. Theoretical ideas can be elicited largely through a review of existing literature as well as from the views of experts in the field. While there is a sense of realism in acknowledging that socioeconomic theories will never be absolute and definitive, as far as possible, the choice and analysis of indicators should be theoretically informed to allow a common understanding of what is exactly the subject of measure.

The second step in the indicator development process is to develop an analytical framework (Wong, 2006) or a conceptual framework (UNDESA, 2007) to clarify what to measure and what to expect from measurement to set out the structure upon which key elements of the indicators will later be developed and analyzed. This analytical framework can be seen as the blueprint that conceptualizes the key dimensions of the phenomenon, the interlinkages among these dimensions, and the rationale of selection and aggregation of indicators. There are two broad strategies to develop a framework of analysis (Wong, 2006; UNDESA, 2007; OECD, 2008). The “bottom-up” approach mainly involves the listing of the key issues or factors that are considered to be important through, for example, a brainstorming session with experts or a literature search. This pragmatic approach can easily fall into the trap of developing an incoherent set of indicators as there is no objective criterion to cross-check the comprehensiveness of the list. In contrast, a “top-down” approach starts from an a priori analysis of the concept concerned, from which the causal relationship between different factors can then be derived to provide a framework of study (Wong, 2006). The most commonly used indicator frameworks include the causal models, for example, the pressure-state-response framework, issue- or theme-based frameworks, and accounting frameworks (UNDESA, 2007).

The next step involves the search for a wide range of possible indicators to measure the issues identified in the analytical framework. The drawing up of a “wish list” of indicators is usually based on an extensive review of related academic and policy literature. In most cases, numerous potential indicators can be identified for each key issue. This is less true once data availability problems have been taken into account. This means a comprehensive search of statistical sources in the public domain, commercial databases, and published directories in all relevant areas will be required. Knox (1978) identified various pitfalls in the construction of indicators, which include the difficulties encountered in the selection, availability and reliability of data, problem of spatial aggregation of statistics, and

problems of interpretation. Recognizing the imperfection of the data means that the selection of indicators has to be rigorously assessed (OECD, 2008). Structured assessment of the value and practicalities of each potential indicator has to address some basic indicator selection criteria: data availability, time-series prospects, operation and implementation, interpretation and relevance, and geographical specifications (if the unit of analysis is an area) (Wong, 2006). Another major pitfall in indicator research is the lack of intellectual rigor in validating (Carmines & Zeller, 1979) and evaluating the measures. Hence, it is important to question whether the indicators at hand are interpretable, relevant, and adequately reflect the key issues of concern.

The final step involves the synthesis of the indicator values. One common practice is to develop a single composite index according to their relative importance based on the underlying theoretical framework (Wong, 2006; OECD, 2008). Before putting the index together, it is important to undertake a preliminary inspection of the statistical properties of indicators, such as their frequency distributions and the correlation coefficients between different indicators in the compiled database. In order to allow meaningful comparison of indicators, standardization is commonly used to provide a consistent scale of measure to avoid the exaggerated influence of certain indicators. After the initial data processing of the indicator value, indicators can be combined together to create a composite index by applying a weighting scheme to individual indicators. There are two broad approaches to devise a weighting scheme: nonstatistical and statistical methods. Nonstatistical weighting methods, such as applying unitary weighting, asking expert opinions directly or using an iterative technique (e.g., the Delphi method), and deriving weightings from previous literature and public opinion polls, have the advantage of simplicity and are easily understandable. The advantage of simplicity is visibility, which means the decisions on weighting can easily be recognized and debated. However, a simple method is not necessarily a less contentious option because it may not provide the most appropriate answer to policy

targeting and is subject to arbitrary and subjective judgment. Various statistical techniques such as factor analysis, regression modeling, and multi-criteria analysis can be used to produce a combined multivariate index from the selected indicators. The downside of these methods is that they tend to be more complicated and create a statistical black box which makes the process less transparent for interpretation. Composite indices have the advantage of providing a hard and fast technical synthesis, but they conceal detailed information on different aspects of the phenomenon studied. This is especially problematic when the relationship between the indicator and the phenomenon concerned is ambiguous.

Discussion

The proposed methodological steps encapsulate the process involved in the creation of quantitative indicator sets. When conducting indicator research, there is a need to have a sense of realism to make sure that the proposed approach is methodologically sound as well as practically plausible to meet with the analytical and policy needs. The methods used to produce a composite index are controversial, and the ultimate choice has to reflect the balance between simplicity, statistical robustness, and flexibility. There is rarely a simple “right” or “wrong” approach, but there are more appropriate solutions to handle a particular set of indicators to serve a particular analytical need.

Cross-References

- ▶ [Composite Indices](#)
- ▶ [Indicator Selection Criteria](#)
- ▶ [Indicators, Quality of Life](#)
- ▶ [Social Indicators Movement](#)
- ▶ [Standardization](#)
- ▶ [Weighting Schemes](#)

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Indicator Selection Criteria

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Synonyms

[Criteria for selecting indicators](#); [Selection framework of indicators](#)

Definition

Indicator selection criteria are a set of guiding principles used to systematically assess the value and practicalities of potential indicators for

measuring the phenomenon concerned. This should be seen as part of the indicator methodology.

Description

Operational decisions are involved in relation to the handling of statistics and other methodological issues. Knox (1978) identified various pitfalls in the construction of indicators, which include the difficulties encountered in the selection, availability and reliability of data, problem of spatial aggregation of statistics, and problems of interpretation. Recognizing the imperfection of the data means that the selection of indicators has to be rigorously assessed.

Different assessment criteria have been proposed. For example, the OECD's (2008, p. 15) user guide on constructing composite indicators suggests that "Indicators should be selected on the basis of their analytical soundness, measurability, country coverage, relevance to the phenomenon being measured and relationship to each other. The use of proxy variables should be considered when data are scarce." Similarly, Wong (2006) suggests that structured assessment of the value and practicalities of each potential indicator have to address five basic criteria: data availability, geographical specification (both coverage and spatial scales), time-series prospects, operation and implementation, and interpretation and relevance.

Furthermore, many datasets are only covered by surveys that do not provide a more fine-grained spatial breakdown. With the pressing need of having more updated information on various indicator sets, the use of survey data to construct indicators becomes a major topic of discussion. There are different types of modeling methods to produce estimates of data (DETR, 2000), for instance

- survey-derived estimates, national surveys can be used to derive indicator values for local neighborhoods
- attributing estimates, this normally involves the use of some criterion variables to directly attribute higher spatial level (e.g., local

government area) data to local neighborhoods with the total figure controlled at the higher level

- allocated values, the indicator value of local neighborhoods will be exactly the same as that for the entire local government area.

While the use of survey data provides valuable opportunities to broaden the data sources available for measuring indicators, it is however important to recognize that the use of survey data requires considerable effort to establish the robustness and consistency of the modeled values between areas and over time (Wong, 2006).

Wong and Watkins (2009) established a set of appraisal criteria to specify the quality of the outcome indicators of spatial planning in terms of their conceptual relevance, policy integration, technical robustness, and contribution to accountable decision-making. The foremost concern when assessing the indicators is that they are conceptually relevant in reflecting the "higher level" socioeconomic and environmental outcomes of spatial planning objectives. Hence, a stepwise approach is used by assessing the indicators' conceptual and policy relevance in front of other criteria in relation to technical robustness and learning and accountability. This means that when an indicator fails to pass the first two sets of criteria, it will be excluded and not be assessed for the remaining criteria. These criteria are:

Conceptual relevance:

- Inform the causal links with the specified social, economic, and environmental objectives of spatial planning at different spatial levels.
- Inform the causal links with the inputs, process, and outputs of the planning system at different spatial levels.

Policy integration:

- Reflect planning's contribution to the achievement of specified key sectoral policies.
- Support cross-departmental contributions to achieve spatial outcomes at appropriate spatial levels.
- Enable delivery, monitoring, and feedback to spatial planning at different spatial levels.

- Support place-making objectives of local government.
- Technical robustness:
- Consistency: clarity in definition and able to compare across different spatial scales and over time.
- Transparency: clearly stated spatial objectives, targets, indicators, and methods of monitoring.
- Flexibility: monitor thematic and crosscutting issues across different spatial levels.
- Continuity: agreed and stated methodologies and routine data collection to encourage continuity in the methods and measures used.
- Simplicity: succinct and simple forms of analysis which are easily accessible.
- Relevance: intelligence has to be reliable and relevant to the issue concerned.
- Time series: identify an appropriate time frame for updating and reporting intelligence, taking into account the practicality of data availability.
- Learning and accountability:
- Provide relevant information to planning stakeholders in the delivery chain.
- Enable participative learning and negotiation in the decision-making process.
- Support a transparent and accountable framework for measuring planning outcomes.

Discussion

It is important to reiterate the fact that data availability, which frequently entwines with the problem of lacking fine-grained data, remains the fundamental millstone in restricting the eventual set of indicators developed. While the measurement of indicators involves many technical and operational tasks, the selection of indicators should not be simply reduced to a technical exercise, but rather it should be conceptually driven and have policy relevance.

Cross-References

- ▶ [Indicator Methodology](#)
- ▶ [Neighborhood Unit](#)

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Indicators for Assessing Environmental Status

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Synonyms

[Environmental health indicators](#); [Environmental indicators](#)

Description

Indicators are a powerful tool for measuring and monitoring environmental quality and status, i.e., the state of natural resources and associated ecosystem services. They are “quantitative/qualitative statements or measured/observed parameters employed to describe existing situations and measure changes or trends over time” (UNESCO, 2006). They are employed to quantify, simplify, and further communicate complex phenomena, usually to policy makers and the wider public. The increased interest in the development of indicators worldwide has led to a number of generalized indicator sets (OECD, 1993; EEA, 2005a; Esty et al., 2005) and, also, indicators for

specific applications (EEA, 2005b; Wascher, 2000; UNESCO, 2006). These indicators can also be adapted according to scale from local, regional, to national (Cedrero et al., 2003).

Important questions that need to be answered in relation to the development of methodological framework for any given project are the following:

1. Which approach to environmental indicators derivation should be adopted?
2. Which dimensions of indicators should be used?
3. Which indicators for the selected dimensions should be employed?

Which Approach?

The broad approaches used in the development of indicators for measuring environmental status may comprise the following:

1. The “top-down” approach which is expert driven and where indicators are developed at a higher level and passed down to stakeholders for implementation (e.g., Environmental Sustainability Index and Environmental Performance Index)
2. The “bottom-up” approach which is developing metrics with the participation of stakeholders
3. The integrated or “hybrid” approach which combines the strengths of the first two where experts guide the process and stakeholders decide on the selection of indicators

Which Dimensions?

In identifying indicators for sustainability assessment, several dimensions are usually considered which include environmental, economic, social, and institutional.

The *environmental indicators* usually employed are normally natural science-based related to the state of an ecosystem. An example is provided by the measurement of biodiversity or habitat quality. This approach relies more heavily on scientific capacity and understanding of the particular ecosystem under consideration. It needs a strong science support for data collection and methodologies for measurements as well as good scientific knowledge for data interpretation.

Social and Economic Indicators: These are related social and economic aspects of human activities and conditions. Some of those focus on purely economy, public health and safety, social cohesion, and cultural integrity, for example, the measurement of population dynamics or investment capital.

Governance/Institutional Indicators: This group of indicators is designed to measure the performance of the responses to mitigate human pressures on the environment. They also measure the progress and quality of the governance process itself. Examples include existing legislation, engagement in active environmental management, and the provision of education and training opportunities by a government.

Which Indicators?

Whereas some approaches focus on finding indicators for which there is a broad consensus for their utility (theory driven), other approaches may take a more pragmatic approach by focusing on indicators for which data is available (Niemeijer, 2002). Therefore, important questions that need to be addressed regarding the selection of indicators include data availability, the specificity of the indicators for the area and application of interest, the spatial and conceptual aggregation of the indicators, and the establishing of a baseline or reference values for the indicators selected. Another criterion might be whether stakeholders can easily relate with the selected indicators if an integrated/hybrid approach to indicator development is to be adopted.

Data Needs: The diversity of indicators implies that there will be a diversity of ways that these indicators will be measured. Variables can be continuous, discrete, or categorical. For example, while most of the ecological indicators are quantifiable entities, for governance and some socioeconomic indicators, usually qualitative data is needed, i.e., the level of protection on a protected area or the presence of a clear legislative framework/spatial planning framework. The qualitative nature of an indicator might be preferred in order to facilitate collection from nonexperts in the particular field. As a result, governance/institutional indicators need not to

be complicated. A simple governance indicator might be the presence or not (i.e., two categories) of a managing authority for a particular protected area that has a clear remit and adequate resources to achieve effective management.

Spatial/Assessment Units

One of the central issues in monitoring environmental status is the units where data need to be collected and reported. The purpose of a system for measuring and monitoring the state of the environment should be the identification of non-desirable situations where corrective actions should be implemented. Therefore, the use of assessment/spatial units relevant to policy and administration is advocated. However, physical processes operate most of the times at different scales to those imposed by administrative units. Moreover, administrative units are more complex and heterogeneous. Inevitably, there are different assessment units for different indicators (e.g., ecological vs. socioeconomic).

Cross-References

- ▶ [Indicator Framework](#)
- ▶ [Indicators of Ecosystem Change](#)

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Indicators for Sustainable and Liveable Flemish Cities

- ▶ [Flemish City Monitor](#)

Indicators of Child Health and Well-Being in Greenland

- ▶ [Children's Health Index](#)

Indicators of Ecosystem Change

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Synonyms

[Climate analysis indicators tool](#); [Environmental sustainability](#)

Definition

Most ecosystems are subject to natural disturbance cycles that cause alterations to their structure and function. These natural fluctuations represent the operating space within which we

have experience of the function and services of an ecosystem. An ecosystem change, for our purposes, occurs when ecosystem structure and function go outside the bounds of these natural fluctuations.

Indicators of change are typically chosen to provide an early warning of natural response to environmental impacts, to directly indicate the cause of a change observed, to provide continuous assessment over a wide range and intensity of stresses, and to be efficient in terms of cost, time, and ease of measurement.

Description

Introduction

It is impossible to disentangle human well-being and quality of life from the services provided by ecosystems. *Ecosystem services* include *provisioning* of resources like food and timber, *regulating* services like climate amelioration, *supporting* services like pollination, *cultural* services like the spiritual rewards that come from nature, and the *opportunity* for options to find new services in the future (Carpenter et al., 2009). While the importance of ecosystem services is undeniable, many threats are causing ecosystem changes around the globe. In particular, the following five processes cause significant ecosystem changes: *land use change*, *climate change*, *invasive species*, *nitrogen deposition*, and *overexploitation of species* (Sala et al., 2000). Finding useful indicators of ecosystem change is attractive because it allows tracking a subset of components to quickly and accurately demonstrate important changes to ecosystem health.

Resilience and Healthy Ecosystems

We must be clear to describe ecosystems at proper temporal and spatial scales that capture the natural dynamic equilibrium of ecosystems. Ecosystems are always changing; it is rapid deterioration and large surprises we hope to detect and avoid. Healthy ecosystems are resilient with the capacity to continue to

provide ecosystem services despite natural disturbances.

Resilience describes the capacity of an ecosystem to tolerate disturbance without collapsing into a qualitatively different state that is controlled by a different set of processes (Holling, 1973). A resilient ecosystem will absorb the impacts of disturbance and have the components to rebuild itself. Ecosystem resilience is characterized by:

- The amount of change the ecosystem can endure and recover from with the same controls on function and structure
- The degree to which the system is capable of self-organization
- The ability to build and increase the capacity for learning and adaptation (<http://www.resalliance.org/>)

Resilient ecosystems are healthy and can provide ecosystem services for human well-being (Elmqvist et al., 2003). Loss of resilience may occur with the threats mentioned above. In particular, indicators of loss of resilience and ecosystem change include:

- Loss of *biodiversity*
- High pollution loads
- Inflexible, closed social institutions that develop through time
- Perverse subsidies that encourage unsustainable resource use
- A focus on production and increased efficiencies that leads to a loss of ecosystem redundancy (<http://www.resalliance.org/>)

Monitoring Ecosystems

Monitoring data are useful when collected over long periods of time and when they can be used to track normal ecosystem changes and indicate when unwanted ecosystem changes may be about to occur. Selecting indicators for monitoring ecosystem change is critical, since not all components of an ecosystem can be monitored.

Measures of Ecosystem Change

A number of measures may represent particularly good indicators of ecosystem change or loss of resilience. Successful indicators may have the

following characteristics (Carignan & Villard, 2002):

- They provide an early warning of natural response to environmental impacts, like change at edges often does (Harper et al., 2005).
- They directly indicate the cause of a change observed rather than show only the change itself.
- They provide continuous assessment over a wide range and intensity of stresses. This allows for detection of numerous impacts on the ecosystem and also means that responses might be linear instead of nonlinear: that is, the indicator will not level off or bottom-out.
- They are efficient in terms of cost and time and can be easily measured even by nonexperts.

At the species level, some attributes may make some species better indicators of ecosystem change than others (Niemi & McDonald, 2004):

Keystone species: species that have disproportionate importance for other species out of range of their abundance.

“Umbrella species” that may have needs that are more sensitive than other species, for example, wide-ranging species like grizzly bears that may need large tracts of land and are sensitive to habitat fragmentation.

Dispersal-limited species that are sensitive to even small changes in landscape structure.

Resource-limited species that have very specific resource needs.

Process-limited species that may need a very specific disturbance level or rate.

Flagship species that may be particularly important to human use and understanding of an ecosystem.

Species at risk that are already rare and require significant management.

Species closely associated with a particular habitat can indicate small changes to that habitat.

All of these species should be evaluated for their local importance to the project, and the assumption must never be made, without evidence, that they provide good indicators for other species or components of the ecosystem. It is often the case that one taxon does not provide useful information for others (Simberloff, 1998).

It is also important to have well-articulated objectives (exactly what is being measured and why?) and to be clear to disentangle different sources of error from the data (which changes in the indicator are due to background noise/ecological drift, and which changes are due to the drivers of interest?).

Thresholds

Thresholds are the points at which change in a monitored indicator becomes so large that management intervention is triggered. Thresholds may be difficult to set to understand when and how ecosystems change in response to a stressor. Nevertheless, we may set thresholds that determine the maximum amount of change we are willing to accept before an ecosystem has changed to another state.

Alternative Stable States

In some circumstances ecosystem changes may be so profound that the ecosystem may be shifted to an alternative stable state (Scheffer, 2009). In general this results in an ecosystem that can be very difficult to change back to the original state, even if the change that caused the alteration may have itself been quite small (though it is likely to have occurred at the end of a number of cumulative effects). The best indicators of ecosystem change can provide early warning of these events.

Getting Close to Transitions

Approaches that are useful in detecting when ecosystems are getting close to transitions are especially important in understanding, and adapting to, ecosystem changes. Ecosystems may exhibit significant resilience to change, but the difficult part for managers may be avoiding wholesale ecosystem changes that move an ecosystem into a new state. Indicators of these massive ecosystem changes are just being developed and include the following.

Critical Slowing Down (CSD)

Critical slowing down refers to the decreasing rate of recovery from small perturbations to a population’s expected trajectory in the vicinity

of a tipping point. In technical terms CSD occurs around bifurcation points, where the dominant eigenvalues that characterize the rates of change around an equilibrium converge to zero (Drake & Griffen, 2010). Effectively this measures slower recovery from perturbations, a probable strong indicator of ecosystem change (Scheffer, 2009). These measures are ecosystem specific, for the obvious reason that rates of change of, for example, small insects and massive marine mammals will always be different.

Increasing Autocorrelation

Ecosystems will not always have clear data demonstrating multiple recoveries from disturbances, and so measuring the above recovery rates is often likely to be impractical. Natural disturbances and perturbations almost always exist in ecosystems, and so the responses to these perturbations can be monitored. In general, as the rates to recovery slow, the ecosystem state becomes more and more like its past state, what is referred to as lag-1 autocorrelation (correlation of a time series to a step one removed from the present one). These lag-1 autocorrelations have been shown to indicate an ecosystem approaching a dramatic change (Scheffer, 2009).

Increasing Variance

The fluctuations of key processes in an ecosystem may also indicate an upcoming ecosystem change. As a system loses resilience to disturbances, the form of the recovery may change, showing increased variance to perturbations (i.e., different ways to get back to the original state; Scheffer, 2009).

Flickering/Stuttering

It is also possible for a system to move quickly back and forth between two alternative stable states. This is called flickering or stuttering and may indicate an upcoming permanent ecosystem change to a new state (Scheffer, 2009). At any rate, it is a clear indicator that an ecosystem has lost resilience and that some management input is likely necessary: seldom are rapid, wholesale ecosystem changes like this sustainable in the long run.

Increased Spatial Coherence

As ecosystem changes near, various components or patches within the ecosystem may become more similar to one another compared to the past (Scheffer, 2009). This “spatial coherence” can indicate dramatic ecosystem changes on the horizon.

Novel Ecosystems

Finally, given all the changes to ecosystems worldwide, the development of novel ecosystems is likely. Novel ecosystems are characterized by nonhistorical species configurations that arise due to the changes described above. They arise due to human activity but do not depend on human intervention for their maintenance (Hobbs, Higgs, & Harris, 2009). Because novel ecosystems are not easily reversed to the original state, they present a significant challenge for ecosystem managers as ecosystem functions and services can be dramatically changed in ways never before experienced (Hulvey et al., 2013). Novel ecosystems are determined by changes in biotic (e.g., species composition) and abiotic (e.g., changes to climate) conditions, though we currently have little understanding of when we are approaching a transition from a historical ecosystem to a hybrid ecosystem (composed of components of both historical and novel ecosystems) and a novel ecosystem itself (Starzomski, 2013).

Location-Specific Indicator Development Important

While the above discussion illustrates key theoretical objectives in selecting and assessing indicators of ecological change, an important point to keep in mind is that these are general guidelines that can be used to help select locally useful indicators. Ecosystems differ from location to location, and the most appropriate indicators may change with them. When assessing the potential for a measure to be an indicator of local ecosystem change, it is important to decide what attributes make an effective local indicator.

Ecosystem-Based Management

In general management of ecosystem change draws on adaptive management, under the framework of ecosystem-based management, or

ecosystem management. This form of management requires consideration of all the components of an ecosystem, including humans, and does not take a species-based approach. In the end, it allows for more flexibility in managing ecosystems to avoid dramatic change or surprise.

Conclusions

Indicators of ecosystem change can include a variety of measures, chosen for their sensitivity to change and importance in an ecosystem. Indicators might come from the species level, community level, or habitat level and may also take the form of measurements of abiotic variables. It is important to choose indicators that are locally relevant, sensitive to the drivers of change, respond continuously to the change, and have a response signal that is easily distinguished from background noise.

Cross-References

- ▶ [Eco-health](#)
- ▶ [Ecological Well-Being](#)
- ▶ [Environmental Management](#)
- ▶ [Natural Resource Management \(NRM\)](#)
- ▶ [Nature and Well-Being](#)
- ▶ [Social-Ecological System\(s\)](#)

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Indicators of Happiness

- ▶ [Happiness Measures](#)

Indicators of Social Development (ISD)

- ▶ [World Bank Social Indicators of Development](#)

Indicators of Sustainability

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Synonyms

[Indicators of sustainable development](#)

Definition

Sustainability indicators are quantitative and/or qualitative measures that aim to interrelate and assess different areas of social, environmental, economic, institutional, and territorial development. In general, they intend to achieve one or more of the following: evaluate ► [sustainable development](#) conditions and trends across time and space, monitor progress toward goals and targets, inform planning and ► [decision making](#), compare different places and situations, raise awareness and encourage political and behavior change, promote public participation, and improve communication on sustainability debates.

Description

The 1920s symbolize the beginning of the contemporary era of assessing development progress, when economic indicators started to be widely developed to guide economic ► [decision making](#), mainly in the United States. ► [Social indicators](#) gained momentum decades later due to the call to understand and study social conditions and change much in vogue during the 1960s. At the same time that the “social indicators movement” was flourishing, expanding environmental awareness also generated progresses toward greater environmental legislation, assessment, and ► [monitoring](#) at different territorial levels. Several environmental indicators were proposed, mainly quantitative and descriptive measures to assess either human pressures in the environment or environmental conditions (Briassoulis, 2001). This traditional indicator grouping in economic, social, and environmental categories was developed and applied separately until the 1980s in North America and ► [Europe](#) and is well explained in Seasons (2003). According to Aall and Norland (2005), the attempt of Galtung and Wirak (in 1979) to develop compound indicators that addressed social and ecological aspects of development can in fact be seen as the first attempt to develop sustainability indicators.

This situation of discrete indicators changed with the arrival of three powerful integrative conceptual models, ► [sustainable development](#), ► [quality of life](#), and ► [healthy cities](#) (Seasons, 2003), and with the replacement of mono-disciplinary with multidisciplinary approaches (Briassoulis, 2001). The 1992 UN Conference on Environment and Development in Rio de Janeiro was the major international boost for efforts to develop sustainability indicators. Since then, we have witnessed a growing and extremely rich scientific, academic, political, and community debate around sustainability indicators, where innumerable proposals for specific indicators or indexes, conceptual frameworks, methodologies, rationales and purposes, presentation and communication methods, and participative tools, among others, have been discussed to structure the process for indicator development at local, national, and international levels.

At the local level, hundreds of urban places, initially in the United States (e.g., ► [Sustainable Seattle](#)) and later all over the world (e.g., Vancouver, Stockholm, Bristol), have created sustainability indicators identifying and defining particular aspects of sustainability in their community (e.g., see Gahin, Veleva, & Hart, 2003, or Holden, 2009; Walter & Wilkerson, 1998). Innes and Booher (2000) describe this flourishing of practice and research on indicators as “the community indicators movement.” Boosted by “► [Agenda 21](#),” this movement pushed for a participative and “bottom-up” development of sustainability indicators to provide stronger bases for local ► [decision making](#). Many of these community experiences were developed by citizens themselves with their own procedures and generated indicators based on their particular needs and circumstances, considering the available resources and the perspectives of the people involved. It involved a good deal of “trial and error, of learning by doing” (Walter & Wilkerson, 1998), and it was sometimes loaded with unrealistic expectations (Sawicki, 2002).

At the national level, many countries have also established national sustainability indicators, and most of them are in close contact with the UN, OECD, the World Bank, the EU, or other

organizations: Canada, the United States, the Netherlands, the ► UK, Switzerland, Sweden, Thailand, Bhutan, ► New Zealand, Australia, and ► Hong Kong, just to name a few. The 2002 Summit on Sustainable Development in Johannesburg was an important milestone, since many countries developed their sustainable development strategies and related ► monitoring indicators when preparing for this summit meeting. Dahl (2012) recently reports the clear evolution of national experiences in this area, where there has been sophistication in the use of indicators in national reporting, e.g., reports with fewer pages, less frequency, less indicators, and more space devoted to graphics, maps, and photographs, which made it possible to summarize important messages in complex data. There are also several examples of different countries trying to integrate a common set of sustainability indicators at a regional level, such as in Europe (with the European Commission work, the Eurostat's Sustainable Development Indicators or the European Environmental Agency core set of indicators), in North Europe (Nordic set of indicators), in Latin America and the Caribbean (Sustainable Development Indicators in Latin America and the Caribbean), or in Northeast Asia (Northeast Asia Sustainable Development Indicators), or at a subnational level, within regions (e.g., the UK common regional indicators, Algarve region in Portugal).

From the global international perspective, the United Nations launched the program on sustainability indicators within the ► UN Commission on Sustainable Development (UNCSD) after the Rio Earth Summit in 1992. UNCSD was one of the first international institutions to take the lead, by publishing *Indicators for Sustainable Development: Frameworks and Methodologies* in 1996 and more recently the indicators for the UN Millennium Development Goals. A number of other institutions, such as the OECD (e.g., Stiglitz, Sen, & Fitoussi, 2009), the EU, as well as universities, research centers, and nongovernmental organizations, like the World Resources Institute, the Worldwatch Institute, or the International Institute for Sustainable Development (IISD), have been working on programs or frameworks

to establish sustainability indicators for the planet as a whole or in a global dimension. On the other side, a key characteristic of this international cooperation has been the emergence of several international networks, particularly in Canada and the United States, such as the US-based International Sustainability Indicators Network, the ► Community Indicators Consortium, the Canadian Sustainability Indicator Network, or the international cooperation of experts to design guidelines for establishing sustainability indicators, such as the well-known Bellagio principles developed in 1996 (Hardi & Zdan, 1997) and recently revised and updated (Pintér, Hardi, Martinuzzi, & Hall, 2012).

Apart from this territorial distinction, there are also many examples of efforts to develop sustainability indicators for specific sectors, such as sustainability indicators for the mining and mineral industry, agriculture, forestry, energy, water, and transport, among others. In the private sector, different corporate sustainability assessment methodologies also exist in practice for evaluating the ► performance of individual companies, e.g., the World Business Council for Sustainable Development (WBCSD) indicators, the ISO international standard indicators to assess corporate environmental performance, the widely spread Global Reporting Initiative framework (GRI), the OECD's Guidelines for Multinational Enterprises, or the recent partnership between GRI and OECD to strengthen harmonization of sustainability reporting by multinational companies.

There is also a variety of Internet tools that try to systematize, publicize, and generate debate around indicator projects from the global to the local level, e.g., the IISD's electronic Compendium of Sustainable Development Indicators, the online list of the Institute of Development Studies, and the Global City Indicators Program sponsored by the World Bank, among others.

From all this massive diversity of ways for devising and establishing sustainability indicators, named by some as an "indicator industry" (Herzi & Hasan, 2004), it is possible to accommodate the debate within three theoretical approaches to the research and practice on

sustainability indicators: the “technical,” the “participative,” and the “governance” approach (see this categorization in Holman, 2009, for instance).

The more traditional “technical” approach (e.g., Bossel, 1999; Hammond, Adriaanse, Rodenburg, Bryant, & Woodward, 1995; Moldan, Billharz, & Matravers, 1997; Singh, Murty, Gupta, & Dikshit, 2012) is concerned with the value of indicators as metrics, models, robust methodologies, and tools that best simplify, quantify, analyze, and communicate the complex and complicated information about sustainability, its trends, and hotspots (Warhurst, 2002). It focuses on methodological aspects to strengthen the scientific robustness of sustainability indicators, while most of the debates on methodologies are not exclusive to sustainability indicators (they derive from similar problems when using economic indicators, social indicators, and environmental indicators individually). The most important topics discussed are the following: the type of framework to use (*conceptual frameworks* such as economic frameworks, pressure-state-response (PSR) frameworks and its variations, capital frameworks, frameworks of human well-being or ecosystem well-being, theme-based frameworks, or *statistical frameworks* such as capital-accounting-based frameworks or the triple-bottom-line accounting framework); quantitative (objective) or qualitative (subjective) indicators; the dispute around aggregation, through ► *composite indices* (see a review of the most well-known indexes, such as the ► *Ecological Footprint* or the *Well-being of Nations Index*, with the extensive work of Singh et al., 2012), or simplification, through shorter or longer lists of indicators; and, the most appropriate criteria to choose and create a “good” indicator (such as availability and quality of data, relative ease of collecting data, scientific validity and reliability, time horizon, spatial area of relevance, relation to other indicators and amenability to aggregation, transparency and accountability, policy relevancy, among others).

The “participative” approach (see Bell & Morse, 2003; Gahin et al., 2003; Holden, 2009; Innes & Booher, 2000; Kline, 2000; Maclarens,

2002; Rydin, 2007) belies much of the debate on the “community indicators movement” basis whereby public awareness and ► *public participation* on the development of indicators is far more important than the indicators per se, enabling learning opportunities for different stakeholders. Questions of “who participates,” “who decides,” “who uses,” “for whom are indicators meaningful,” and “how to communicate” or deeper questions of power and knowledge around sustainability indicators are therefore crucial for this “participative” approach.

More recently, some researchers (e.g., Fraser, Dougill, Mabee, Reed, & McAlpine, 2006; McAlpine & Birnie, 2005; Rametsteiner, Pülzl, Alkan-Olsson, & Frederiksen, 2009; Ramos & Caeiro, 2010) advocate the “cross-fertilization” of both these seemingly opposite approaches, supporting the convergence of both top-down and technical concerns with bottom-up and collaborative approaches. The “governance approach” (e.g., Herzi & Dovers, 2006; Morel Journel, Duchene, Coanus, & Martinais, 2003; Moreno-Pires & Fidélis, 2012; PASTILLE, 2002; Rosenström, 2006) begins from this cross-fertilization but goes further to try to understand and explain the different challenges of developing sustainability indicators in context and their ► *governance outcomes*. It studies the way indicators provoke change in existing institutional arrangements for ► *sustainable development* and how these institutional frames limit or facilitate the use of indicators, the way indicators shape new networks and steer the relationships between multiple stakeholders, the way they promote new communication channels, and the way they foster policy integration, horizontally and vertically toward sustainability (Holman, 2009).

Sustainability indicators are undoubtedly critical tools, processes, or means that help to operationalize and synthesize the chameleon concept of ► *sustainable development* across space and time, to guide and stimulate decisions and actions of multiple actors in ever changing and dynamic contexts, and to destabilize or reinforce power relations toward critical environmental, economic, social, cultural, and institutional pressures and value shifts, through new data and

knowledge. They certainly need to be used more effectively toward more meaningful outcomes, and this frames the future of debates.

Discussion

Dahl (2012) points to two big “technical” challenges of today when finding better measures of progress toward sustainability targets taken on by the new urgencies of climate change, food and energy crises, and financial and economic crises. The first challenge comes from an older but intensified picture of an uncoordinated “indicator industry,” with no consensus around methodologies. Based on this, several authors (e.g., see Pintér, Hardi, & Bartelmus, 2005 or Tanguay, Rajaonson, Lefebvre, & Lanoie, 2010) insist on a stronger coordination and harmonization of sustainability indicators and targets at different territorial levels and different stages. The second challenge regards the need to find sustainability indicators that can show progress at the level of individual sustainability targets to provide positive incentives for future individual efforts (Dahl, 2012). Other overarching challenges involve the need to foster a new approach to structuring and positioning sustainability indicators within urban

► **governance** systems, a new theoretical and practical understanding of their effective and potential contributions to improve quality of life, green economic development, ► **social cohesion** and ► **resilience**, and trust in ► **governance**.

► *Social Indicators Research*, *Ecological Economics*, *Ecological Indicators*, *Journal of Cleaner Production*, and *Local Environment* are some of the most important journals providing a prominent space for sustainability indicator debate.

Cross-References

- [Agenda 21](#)
- [Bellagio Principles for Assessing Sustainable Development](#)
- [Community Indicators Consortium](#)

- [Composite Indices](#)
- [Composite Indicator\(s\)](#)
- [Conceptual Framework for Quality of Life](#)
- [Decision Making](#)
- [Ecological Footprint](#)
- [Europe, Quality of Life](#)
- [Governance](#)
- [Healthy Cities](#)
- [Hong Kong, Quality of Life](#)
- [Monitoring](#)
- [New Zealand](#)
- [Performance](#)
- [Planning, an Overview](#)
- [Public Participation](#)
- [Quality of Life](#)
- [Resilience](#)
- [Social Cohesion](#)
- [Social Indicators](#)
- [*Social Indicators Research*](#)
- [Social Indicators Movement](#)
- [Sustainable Development Indicators](#)
- [Sustainable Development](#)
- [Sustainable Seattle](#)
- [UK](#)
- [United Nations Commission on Sustainable Development](#)

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Indicators of Sustainable Development

► Indicators of Sustainability

Indicators, Quality of Life

- Sustainable Development Indicators

Índice de Religiosidade de Duke

- Duke Religious Index in Portuguese

Indice di Qualità dell'Aria

- Air Quality

Indice Metropolitano de la Calidad del Aire

- Air Quality

Indices

- Composite Indicator(s)
- Contextual Indicators

Indices for Monitoring Biodiversity

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Synonyms

Biodiversity indices

Description

Biodiversity is the variety of species found within a community. It has long been assumed

that biodiversity is related to environmental “quality,” with higher biodiversity implying a more “healthy” ecosystem, even if there is some ambiguity in the meaning of the term “biodiversity” and how it should best be measured (Haila & Kouki, 1994; Ricotta, 2005).

Most biodiversity indices are based on measures of relative abundance of a taxonomic unit, usually a species, within a community (Heip, Herman, & Soetaert, 2001). In mathematical terms:

Where N is the total number of individuals in the ecosystem, n_i is the number of individuals of species i , and therefore p_i is the proportion of total sample belonging to the i th species. This is repeated for all of the species (S) in the sample. Diversity indices are usually accompanied by a measure of evenness which is the relative abundance of individuals (dominance).

Perhaps the most well-known and applied example of a biodiversity index is the Shannon index (H) named after its creator Claude Shannon. Rather confusingly it is also referred to as the *Shannon-Wiener* and *Shannon-Weaver index*, and explanations for this have been provided by Spellerberg and Fedor (2003). The index measures information entropy and has a rather novel origin in information theory rather than biology where “bits” of data (0 or 1) were translated into “presence” and “absence.” The technical formula for H is as follows:

$$H = -\sum p_i \log_2 p_i$$

Σ = sum over all species from 1 to S where S is the total number of species in the sample

$$\log_2 = \text{logarithm to the base 2} \\ \times (\text{i.e., “presence” or “absence”})$$

The negative sign in H converts the results of the calculation from negative to positive (e.g., $-(-0.5) = +0.5$). It is required because the logarithm to the base 2 of values less than 1 is always negative (\log_2 of 1 = 0). In basic terms the higher the value of H , then the greater the biodiversity of the sample.

For example, take a simple situation where there are only 2 species ($S = 2$) in an ecosystem and the sample size (number of organisms, N) is 100:

1. 50 individuals of each species

$$\begin{aligned} H &= -(0.5 \times \log_2(0.5) + 0.5 \times \log_2(0.5)) \\ &= -(0.5 \times -1) + (0.5 \times -1) \\ &= -(-0.5 + -0.5) \\ &= 1 \end{aligned}$$

2. 99 individuals of one species and one individual of the other

$$\begin{aligned} H &= -(0.99 \times \log_2(0.99) + 0.01 \times \log_2(0.01)) \\ &= -(0.99 \times -0.0145) + (0.01 \times -6.6439) \\ &= -(-0.0144 + -0.0664) \\ &= 0.08 \end{aligned}$$

The value of H was much larger, for example, than case 2, suggesting that biodiversity is higher. Also note that the value of H will be increased by adding more species. Thus, with an equal representation of four species (25 individuals of each) instead of two (50 individuals of each) and the same sample size of 100,

$$\begin{aligned} H &= -(0.25 \times \log_2(0.25) + (0.25 \times \log_2(0.25)) \\ &\quad +(0.25 \times \log_2(0.25) + (0.25 \times \log_2(0.25))) \\ &= 2 \end{aligned}$$

The value of H (2) in this case is higher than for an equal representation of only 2 species, reflecting the presence of more species in the ecosystem. Indeed typical values for H are between 1.5 and 3.5. Finding the value of H for a particular community is not as easy as it may at first appear given that species may be present in patches or have other unknown distribution patterns and, strictly speaking, H should be found over all of the species present and not just the ones which can easily be observed (Dallot, 2001). Thus, much depends on adequate sampling to allow for these

distributions (Heip et al., 2001), and there is a need to be clear about the spatial boundaries of the community being assessed. In addition, there is an argument here as to what the biological “distinctiveness” should be. In the examples shown here, we use species, but what if the species are representative of but a few genera, and what about variation that may exist within a species?

Simpson's index (D), first introduced by Edward Hugh Simpson and published around the same time as the Shannon-Wiener index in 1949, is an often employed alternative and is simpler to calculate than H but highly sensitive to the number of species and rarity. The index is given by the formula (Simpson, 1949; Krebs, 1999)

$$\lambda = \sum p_i$$

where

$p_i = n_i/N$ is the proportion of individuals (n_i) of species i in the community or sample (N).

Since this index, as written, is counterintuitive in that it ranges from 0 (high diversity) to 1 (low), the inverse is usually taken as the *Simpson's index*:

$$D = 1/\lambda$$

“Evenness” in this case is calculated as $E = D/D_{max}$, where D_{max} is the number of species. E assumes a value between 0 and 1 where 1 is complete evenness.

Let us take the example of two communities in Table 1 with different numbers of species.

For both samples we have calculated the Simpson's index. The proportions (p_i values) have been calculated by dividing the number of individuals for a given species by the total number of individuals collected. To calculate Simpson's D , we squared each proportion (p_i), summed these squared values, and took the reciprocal (divide one by the sum). Evenness (E_A and E_B) was calculated by dividing D by D_{max} for the number of species (in this case 5). Although sample A contains more

Indices for Monitoring Biodiversity, Table 1 Calculating Simpson's index and Evenness from two samples

Species	Sample A Number of individuals (N_i)	Calculations	Sample B Number of individuals (N_i)	Calculations
1	100	$\lambda_A = 0.41$	25	$\lambda_B = 0.23$
2	20		45	
3	18	$D_A = 2.40$	32	$D_B = 4.27$
4	15		19	
5	10	$E_A = 0.48$	13	$E_B = 0.85$
Total (N)	163			

individuals than *sample B* and the same number of species, *sample B* is more diverse ($D_B = 4.27$) with much higher evenness ($E_B = 0.85$). This is because *sample A* is dominated by species 1 which results in low diversity.

While simpler to calculate, Simpson's index is open to much the same sort of criticism as for H. It requires the same in-depth and accurate knowledge of the system being assessed. In addition, as noted above it is especially sensitive to the number of species present, and if this is low, then misleading results can be obtained as less diverse areas would have a higher index than they should.

Spellerberg, I. F., & Fedor, P. J. (2003). A tribute to Claude Shannon (1916–2001) and a plea for more rigorous use of species richness, species diversity and the 'Shannon-Wiener' index. *Global Ecology and Biogeography*, 12(3), 177–179.

Indices, an Overview

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Definition

An index number is a way of presenting proportionate changes in a common format. It can be defined as a statistical measure showing changes in a variable or group of related variables with respect to time, geographical location (e.g., the purchasing power parity), or other characteristics, such as income and profession. We will confine most of our attention to indices measuring changes in economic variables (like prices) and over time.

Suppose that a cup of coffee in a particular café costs 75p in 1995. In 2002 an identical cup of coffee costs 99p. How has the price changed between 1995 and 2002? The index can be calculated by giving a value of 100 to the price in 1995 and by computing the proportionate change in price in 2002, which is $\frac{99}{75} * 100 = 132$. The number 132 is the price index we were looking for. It shows that there has been a price increase of 32 %

Cross-References

- ▶ [Biodiversity Conservation](#)
- ▶ [Indicators for Assessing Environmental Status](#)
- ▶ [Indices](#)

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since 1995, which is called the base year. An important feature of indices is that they have no unit as they measure proportionate changes.

Description

Indices can be constructed using single series of data or multiple series of data. For example, the Retail Price Index, used as a proxy of the cost of living, is a weighted average of proportionate changes in price and quantities of a wide range of goods and services. Suppose now that N goods can be purchased during two different periods with two different sets of prices $p^1 = (p_1^1, p_2^1, \dots, p_N^1)$ and $p^2 = (p_1^2, p_2^2, \dots, p_N^2)$. Suppose further that the quantities purchased $q = (q_1, q_2, \dots, q_N)$ are constant over the two periods. Then a measure of the average level of prices in

period 2 with respect to period 1 is $\frac{\sum_{i=1}^N p_i^2 q_i}{\sum_{i=1}^N p_i^1 q_i}$. This is

the method proposed by William Fleetwood, Bishop of Ely, in 1707. He used a fixed basket of goods to calculate the purchasing power of a fellowship for an Oxford student in 1707 and compared it to what was perceived by a student in 1460 (the year when the fellowship was established). He claimed and proved that the fellowship was insufficient to cover the student's needs in 1707 since the prices of corn, meat, drink, or cloths were five or six times higher than in 1460. History tells that the Oxford student obtained an increased fellowship and Bishop Fleetwood invented the statistical concept of index numbers. Today his approach is called the fixed basket approach.

There is a vast literature concerning the construction of index numbers and their desirable properties (Diewert, 2009; Levine & Rubin 1998).

Usually the first step in constructing an index is the selection of a *base period*, i.e., the period of time against which the comparison is made. There are essentially three types of base period:

(1) a fixed base with a single period like in the coffee example, (2) a fixed base as an average of selected periods, and (3) a chain base. Notice that the base period must be free from all sorts of abnormalities or random causes (such as a financial crisis, floods, wars, major strikes); it should be a period for which reliable figures are available and a period not too distant in the past. When a single period is difficult to choose, then a better choice is to use an average of several periods. If the comparison is required from period to period, then a chain base can be used: the period immediately preceding the one for which the index is calculated is assumed to be the base period. The advantage of this method is that the index of a year can be compared with that of the immediately preceding year. This is useful when there are systematic trends in relative prices and quantities: a fixed base index (like the Laspeyres index) would place too much weight on those goods whose prices have fallen and whose quantity has increased more than other products (this is called the substitution bias). Furthermore, when a fixed base becomes less and less representative of the goods and services transacted, then a chain base could be preferable. The chain base method however is not suited in the spatial context (no comparison between countries is possible) and in cases where prices and quantities oscillate during a period and eventually return to their initial values. In his case the chain base is likely to produce an index drift.

The second step in the construction of an index is the selection of items/commodities for which the change over time has to be calculated. The items could represent real tastes/habits/customs, should have a standard quality, and must not vary significantly in quality across the years.

The "index number problem" refers to the difficulty of constructing a valid index when both price and quantity change over time. For example, in the case of price indices for inflation, both the nature and quality of goods in the economy and their prices change over time as well. A price index constructed in 1900 using a standard basket of goods based on actual

consumption would not well represent consumers in 2000, as goods in some categories no longer exist, and new categories of goods have been introduced. Moreover the relative spending on different categories of goods is likely to change drastically over time and so does the quality of some of the goods in the common basket. Chain-based methods can help address some of these problems (Forsyth & Fowler, 1981), but they are surely useless when the item has changed in quality.

The third step is the definition of a system of weights or, in other terms, the relative importance of the different commodities/items included in the index. The fourth step is the selection of an aggregation formula. An index number can be based on the arithmetic, the geometric, or the harmonic mean, or on the median, the mode, or other more complex formulas. All have merits and demerits depending on the problem at hand.

The literature developed four tests to determine the adequacy of an index number formula (Diewert, 1987):

1. The unit test requires an index free of units.
2. Time reversal test says that the comparison between any two points of time should not depend on the choice of the period regarded as the base period (thus, if the original base year is t and another period, say $t + h$, is chosen as base period, then the index with base $t + h$ should be the reciprocal of the index with base t).
3. The factor reversal test states that the formula should permit the interchange of price and quantities without giving inconsistent results.
4. The circular test entails that if an index is constructed for the year t on a base year $t-i$ and for the year $t-i$ on a base year $t-j$ ($j > i$), we should get the same result as if we calculated the index directly for the year t on the base year $t-j$ without going through $t-i$.

Index numbers have limitations that should be borne in mind. They are rough indicators of relative changes. The choice of representative

commodities may lead to erroneous conclusions as they are based on samples: data used to calculate index numbers might be incomplete, outdated, or inaccurate. There may be errors in the methodology, e.g., wrong base period or outdated weights. Comparisons of changes in variables over long periods are not reliable. They may be useful for one purpose but not for other. Finally they are specialized types of averages and hence are subject to all those limitations with which an average suffers from.

In spite of these limitations, index numbers are indispensable tools for economic and business analysis. They are used as economic barometers to measure the fluctuations of economic and monetary cycles; they make easier the computation of trends and allow forecasting future economic activity. Finally indices help in formulating suitable economic policies and planning as many of the economic and business policies are guided by index numbers.

Cross-References

- ▶ [Composite Index Construction](#)
- ▶ [Index Construction](#)

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Indigenous Child Well-Being in Canada

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Definition

Globally, no universal definition of *Indigenous peoples* has been accepted (World Health Organization [WHO], 2007). Being able to define one's community on one's own terms is a central part of self-determination. Definitions of Indigenous also change over time and are not static. Most definitions will include reference to the relationships of Indigenous peoples to a collective kin group and a current or historic land base (Pinto & Smylie, 2013). One definition from the Indigenous Physicians Association of Canada is the following: "communities, peoples and nations...which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or part of them. They form, at present, non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as a basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal system" (Indigenous Physicians Association of Canada and Association of Faculties of Medicine of Canada, 2008).

Aboriginal peoples is a collective legally defined term for all of the Indigenous peoples of Canada and their descendants. The Canadian Constitution Act of 1982 specifies that the Aboriginal peoples in Canada consist of three groups: *Indians*, *Inuit*, and *Métis* (Government of Canada, 1982).

The term *First Nations* came into common use in the 1970s to replace Indian, which some people found offensive. Despite its widespread use, there is no legal definition for this term in Canada.

The government classifies First Nations/Indian people according to whether or not they are registered under the federal Indian Act. *Status Indians* are registered under the Act. First Nations/Indian people who are not registered under the Act are referred to as *non-status Indians*.

The *Inuit* traditionally lived above the tree line of what is now Canada, and are part of a larger circumpolar Inuit population that includes Greenland, Alaska, and Russia. *Inuk* refers to an individual Inuit person.

The *Métis* are a group of Aboriginal peoples whose ancestry can be traced to the intermarriage of European men and First Nations/Indian women in Canada during the seventeenth century. Individuals of mixed Indigenous and non-Indigenous ancestry who are not directly connected to the Métis of the historic northwest may also identify themselves as *Métis*.

Indigenous peoples in Canada also refer to themselves by their specific *tribal affiliation* (such as *Mi'kmaq*, *Cree*, *Innu*, *Ojibwa*) or *First Nations*, *Native*, *Indian*, *Inuit*, or *Métis*.

Within Indigenous contexts, *children* are commonly thought about within a broader life cycle continuum that circles from conception to end of life and/or as part of a web of kinship relations.

Indigenous peoples also have distinct and diverse understandings of health and *well-being*, many of which are also holistic and broad reaching. For example, in the Plains Cree language the term "*miyopimotisiwin*" is used to describe "living well" or "living the good life" (Makokis, 2008).

Description

Population Demographics

According to the 2006 census, just under 1.2 million persons or 4 % of the total population

in Canada reported Aboriginal identity. Approximately 60 % identified as North American Indian, 33 % identified as Métis, 4 % identified as Inuit, and the remaining 3 % identified with more than one Aboriginal group and/or self-reported as status Indians but did not identify as Aboriginal (Statistics Canada, 2008a). These numbers underestimate the actual Aboriginal population in Canada as there was significant nonparticipation in the census by a number of First Nations (status Indians on reserve) communities and individuals (Statistics Canada, 2008a). Indigenous peoples in Canada also experience high rates of mobility and homelessness, (Smylie et al., 2011) which reduce census participation. Aboriginal identity was not part of the 2011 census so subsequent Indigenous population estimates in Canada will be survey derived. It is anticipated that issues of undercounting will get worse rather than better with the move away from census to voluntary household survey.

The Indigenous population of Canada is extremely youthful. In 2006, 29.7 % of the Aboriginal population in Canada was under the age of 15 years, compared to 17.7 % of the Canadian population. The large and growing populations of First Nations/Indians, Inuit, and Métis infants, children, and youth are linked to a birthrate that is 1.5 times higher than the non-Aboriginal birthrate (Statistics Canada, 2008a). Specifically, the fertility rate between 1996 and 2001 was 2.9 children for First Nations/Indian women, 2.2 for Métis women, and 3.4 for Inuit women, compared to a rate of 1.5 among all Canadian women (Statistics Canada, 2005).

Data Gaps and Deficiencies

In Canada, serious deficiencies in Indigenous health information systems preclude the timely and comprehensive assessment of Indigenous child health and well-being. Challenges underlying these deficiencies include the following:

- A lack of standardized Indigenous identifiers in vital registration, health-care utilization, and surveillance databases in Canada

- Piecemeal, externally imposed data collection systems, which generally are not well integrated across programs/service domains and jurisdictions and do not regularly flow back to Indigenous policy makers and frontline service providers (data and community empowerment)
- A historic exclusion of Indigenous peoples from meaningful involvement in the governance and management of their health data and data systems
- A paucity of available and validated indicators that are perceived to be useful and relevant by Indigenous communities (Smylie & Anderson, 2006)

Indigenous communities in Canada have been responding to these deficiencies by designing and implementing their own health data systems and/or developing data sharing agreements and protocols with non-Indigenous provincial/territorial health data custodians. Notable examples include the following:

- The First Nations Regional Longitudinal Health Survey (First Nations Information Governance Centre [FNIGC], 2012)
- First Nations Client Registry Pilot – Kenora Chiefs Advisory (Northwest Local Health Integration, 2012)
- Naasautit: Inuit Health Statistics, Inuit Tapiriit Kanatami (<http://www.inuitknowledge.ca/naasautit>)
- Metis Health Status Report – Manitoba Metis Federation (Martens et al., 2010)
- Our Health Counts Urban Aboriginal Database project (Smylie et al., 2011)

In addition, the federal government worked in partnership with First Nations/Indian, Inuit, and Métis organizations and governing bodies to develop and implement a national Aboriginal Children's Survey (Statistics Canada, 2008b), which used a census-derived sampling frame. Unfortunately this survey was not continued post 2011 census.

Disparities in the Social Determinants of Health

Indigenous peoples in Canada experience striking inequities in the social determinants of

health compared to non-Indigenous Canadians across the life span (Loppie-Reading & Wien, 2009). This includes a disproportionate burden of poverty, unemployment, food insecurity, homelessness, and housing insecurity as well as lower rates of high school and postsecondary school completion. Indigenous children, who often live in lone-parent families headed by mothers, are disproportionately impacted by these challenges (McShane, Smylie, & Adomako, 2009). For example, 41 % of First Nations children living off reserve and 32 % of Metis children aged five and under lived in low-income families in 2006, compared to 18 % of non-Aboriginal children of the same age. For young Inuit children aged 5 and under living in urban areas outside of Inuit Nunaat, 45 % lived in low-income families compared to 21 % of non-Aboriginal children of the same age (Statistics Canada, 2008a).

The societal processes of European colonization have been identified by Indigenous peoples as a fundamental and underlying determinant of health (International Symposium on the Social Determinants of Indigenous Health, 2007). Indigenous specific determinants of health including colonization, racism, social exclusion, and political marginalization have been identified as distal determinants of health that shape the more proximal determinants of health discussed above (Loppie-Reading & Wien, 2009).

While colonial policies in Canada varied according to Indigenous group time and geographic location, First Nations, Indian, Inuit, and Métis peoples all experienced dislocation from and appropriation of their traditional territories, legislated cultural suppression, political marginalization, and forced assimilation. For example, federal government policies supported the abduction of Indigenous children to residential schools where language and culture were actively suppressed and child neglect and abuse were common place. Between 1849 and 1983, approximately 100 of these residential schools operated in Canada and included First Nations, Indian, Inuit, and Métis students (Dickason, 1992). The impact of colonization goes far beyond the impact on individual

survivors; the trauma is evident across generations of families. The devastating poverty and residential school trauma made First Nations families particularly vulnerable to legislative changes in the 1950s which transferred federal responsibility for First Nations child welfare to the provinces and remunerated provincial child welfare services when they apprehended First Nations children. The result was hugely disproportionate numbers of apprehended First Nations children, a situation which persists today (Bennett, Blackstock, & De La Ronde, 2005).

Health Status Inequities

Indigenous children in Canada experience a significant and disproportionate burden of illness across almost the range of child health status indicators compared to non-Indigenous children. These health disparities are predictable given the disparities in health determinants documented in the previous section. They are also apparent and pervasive despite the limitations in timely and meaningful health assessment for Indigenous children in Canada. Several in-depth reviews of Indigenous/non-Indigenous child health disparities across the diversity of First Nations, Indian, Inuit, and Métis populations have been recently published (McShane et al., 2009; Postl, Cook, & Moffatt, 2010; Unicef, 2009). Key Indigenous/non-Indigenous physical health status disparities include the following:

- Infant mortality rates that are 190 % higher for First Nations compared to non-First Nations (Luo, Wilkins, et al., 2010) and 360 % higher for Inuit-inhabited areas compared to non-Inuit-inhabited areas (Luo, Senécal et al., 2010).
- Disproportionate rates of respiratory tract infection in First Nations and Inuit children. For example, hospitalization rates for bronchiolitis for Inuit children in Nunavut are among the highest ever reported worldwide (484 per 1,000 infants of less than 6 months of age) (Banerji et al., 2001). Rates of tuberculosis among First Nations children in Alberta (Yip, Bhargava, & Yao, et al., 2007) and Inuit living

in Nunavut (MacDonald, Hébert, & Stanbrook, 2011) approach 30 and 60 times the general population rates, respectively.

- A high incidence of poor oral health, including dental caries and baby bottle tooth decay, has been documented among First Nations and Inuit children (FNIGC, 2012; Pacey, Nancarrow, & Egeland, 2010).
- A rate of obesity for First Nations children living on reserve of 36 % compared to 8 % for Canadian children overall (FNIGC, 2012).
- High rates of chronic serious health conditions for First Nations and Metis children including allergies, asthma, and chronic ear infections (FNIGC, 2012; Statistics Canada, 2008b).
- More than double the rate of activity limitation for First Nations, Inuit, and Metis children between the ages of 6 and 14 years compared to Canadian children overall (Statistics Canada, 2003, 2008b).
- Suicide rates for Inuit children and teens living in Inuit Nunangat (Inuit territories in northern Canada) were 30 times higher than those in the rest of Canada (Oliver et al., 2012). Suicide rates for First Nations youth vary geographically but are also markedly elevated overall compared to the rest of Canada.
- Environmental exposures are a significant concern for Indigenous infants and children. For example, elevated levels of mercury, lead, and cadmium have been found in the cord blood of Inuit infants (Van Oostdam et al., 2005); elevated levels of lead have been identified in the cord blood of Métis (Van Oostdam et al., 2005), and half of the homes in First Nations reserve communities have levels of mold that put children and families living in these homes at an elevated risk of respiratory and other illness (Optis, Shaw, Stephenson, & Wild, 2012).
- Elevated rates of smoking have been documented for First Nations youth living on reserve and Aboriginal youth more generally (Elton-Marshall et al., 2011; FNIGC, 2012). Substance abuse is also a serious problem challenging many Indigenous youth (FNIGC, 2012).

Access to health care to health-care services has also been identified as an issue for indigenous children and their families. For example, Inuit children access physician care less frequently than other Canadian children (Statistics Canada, 2003, 2008b), and numerous barriers in accessing health care have been identified for First Nations children and their families living on reserve (FNIGC, 2012) as well as urban First Nations, Inuit, and Métis communities (Smylie et al., 2011).

Family and Community Resilience

Aboriginal children, their families, and communities demonstrate remarkable resiliency in the face of these health status inequities. For example:

- While rates of breastfeeding initiation for First Nations, Inuit, and Metis mothers and infants are slightly lower than those of the Canadian mothers overall, rates of sustained breastfeeding for these populations approach or exceed Canadian rates (FNIGC, 2012; Public Health Agency of Canada, 2009; Statistics Canada, 2008b).
- Parent-reported self-rated health of children, while lower than non-Aboriginal rates are still relatively high (Findlay, & Janz 2012a, 2012b).
- A strong desire to transmit First Nations culture and language across generations has been documented in First Nations families both on reserve and in urban areas (FNIGC, 2012; Smylie et al., 2011).
- A rich and diverse core of culture-based parenting, reproductive health, and family wellness knowledge and practice exists in Aboriginal communities across the country and is being increasingly documented and shared (Health Council of Canada, 2011).
- Health and social services run by communities for communities are having a positive impact on the health and wellness of Indigenous children and their families across the country (Health Council of Canada, 2011).

Policy Issues

Aboriginal and treaty rights are recognized and affirmed as constitutionally protected rights

under section 35 of Canada's 1982 Constitution Act. The Aboriginal rights recognized in section 35 are inclusive of Indian, Métis, and Inuit peoples. These inherent human rights predate Canadian laws as they are derived from precolonial Aboriginal knowledge, heritage, and laws. As such they include the right to engage in traditional health and healing practices (Boyer, 2003). Treaty rights are additional rights linked to the agreements signed between First Nations communities and the Canadian government. Some treaties supplement the right to Aboriginal health care, including the medicine chest and pestilence clauses of Treaty 6 (Boyer, 2003).

In addition to the constitutional rights of Aboriginal peoples, there are many federal and provincial/territorial governmental child-focused statutes. Existing international governmental obligations regarding Indigenous child health which Canada has signed include the United Nations' International Covenant on Economic, Social and Cultural Rights which recognizes the child as a holder of participatory rights and freedoms; the United Nations Declaration on the Rights of Indigenous Peoples which recognized the right of Indigenous families and communities to retain shared responsibility for the upbringing, training, education, and well-being of their children; and the United Nations Convention on the Rights of the Child.

In Canada, jurisdictional ongoing disagreements between the federal government and the provinces/territories have resulted major challenges in Indigenous child health assessment and adequate health service access. For example, in 2005 a chronically ill and disabled First Nations child by the name of Jordan River Anderson died in a Winnipeg hospital, far away from his family and home community in northern Manitoba, because the federal and provincial governments argued for more than 2 years over which government would be responsible for the cost of his home health care. In response to this situation, Jordan's Principle, a child first approach to resolving jurisdictional disputes within and between the federal and provincial/territorial governments, was developed as a private members bill and unanimously

approved by the federal parliament. This legislation requires that the government of first contact pays for the service to the child without delay or disruption (National Collaborating Centre for Aboriginal Health, n.d.).

In 2012, the federal government in Canada made large funding cuts to multiple Aboriginal organizations involved in research, policy, and advocacy regarding Aboriginal child and family health. The government also cut funding to Aboriginal youth suicide prevention programs. These funding cuts have been contested by Aboriginal organizations and health professionals serving Aboriginal communities across the country (Webster, 2012a, b).

Recommendations for Moving Forward

Indigenous communities, organizations, and governing bodies in Canada have clearly articulated policy recommendations to address the health inequities experienced by Indigenous children and their families at the local, regional, provincial/territorial, and national levels. This includes the recommendations of the Royal Commission on Aboriginal Peoples (Royal Commission on Aboriginal Peoples, 1996) and the desired outcomes and targets agreed upon in Kelowna Accord deliberations (First Ministers and National Aboriginal Leaders, 2005). A cornerstone of the Royal Commission on Aboriginal Peoples (RCAP) report recommendations was the need for *a fundamental shift in the relationship between Canadian governments and Aboriginal peoples towards a renewed relationship based on the principles of recognition, respect, sharing and responsibility*. For specific policy directions for a particular Indigenous community or population group, the reader is encouraged to contact the relevant Indigenous governing body or organization.

The Health Council of Canada released a report in 2011 following a series of round tables regarding Aboriginal maternal and child health in Canada (Health Council of Canada, 2011). In response to the question: "If Canada wants to improve the health status of Aboriginal children as one way to reduce health disparities, what promising practices around maternal and child

health need to be either advanced or developed?" participants identified three major contextual issues that need to be addressed in order to optimize the impact and reach of the multiple promising practices that were identified. These were the following:

- The need for a comprehensive, long-term, coordinated, and concerted approach to service delivery that ensures that the improved maternal and child health outcomes currently enjoyed by First Nations and Inuit communities with successful federally funded programs can be shared by all Aboriginal people living in Canada
- The need to address the complexity of current funding arrangements, including the lack of alignment among governments' goals, the multiple rounds of grants and administrative requirements, and the lack of coordination among government programs for streamlined approaches and reporting
- The need to transform a model that is "inside out" by ensuring that traditional knowledge and community-based approaches are the foundation of Aboriginal health care

Participants also highlighted the need to apply a broader approach that goes beyond health services and addresses the adverse social determinants of health experienced by the Aboriginal families they are supporting. Finally, participants emphasize the need for a sustainable plan and dedicated funding to support participatory program and service evaluation.

Cross-References

- [Aboriginal Community Well-Being Index](#)
- [Aboriginal Peoples Survey, Canada \(APS\)](#)
- [American Indian/Alaska Native Child Health Indicators](#)
- [Andean and Amazonian Native Conceptions of Well-Being](#)
- [Australian Indigenous Peoples](#)
- [Circumpolar Indigenous Peoples](#)
- [Health-Related Quality of Life in Aboriginal and Non-Aboriginal Populations](#)
- [Indigenous Child Well-Being in Canada](#)

- [Indigenous Health Disparities](#)
- [Indigenous Knowledge](#)

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Indigenous Disease Profile

- ▶ Indigenous Health Disparities

Indigenous Education

- ▶ Education, Traditional

Indigenous Epistemology

- ▶ Education, Traditional

Indigenous Health Disparities

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Synonyms

Aboriginal health; Aboriginal inequality; Indigenous disease profile; Indigenous inequality; Indigenous issues

Definition

Indigenous populations tend to self-identify as indigenous, have occupied lands prior to

colonization, and maintain distinct social, political, economic, and cultural systems. The health of this population can be measured by traditional indicators such as infant and child mortality, disease patterns, and life expectancy, as well as other health burdens that include interpersonal violence and drug and alcohol problems.

Description

Indigenous health is a complex and pressing issue that has been declared a worldwide initiative by the United Nations as well as by academics and policymakers (Stephens, Porter, Nettleton & Willis, 2006). It includes the health profile of indigenous peoples, indigenous health philosophy, as well as the structural and cultural roots of health disparities. A better understanding of these issues is key to developing strategies to improve overall wellness of indigenous populations around the globe.

Nearly 400 million indigenous people inhabit all continents of the world today. Although a diverse and heterogeneous group, these populations share some common characteristics. Indigenous populations tend to self-identify as indigenous, have occupied lands prior to colonization, and maintain distinct social, political, economic, and cultural systems. The health of this population can be measured by traditional indicators such as infant and child mortality, disease patterns, and life expectancy, as well as other health burdens that include interpersonal violence and drug and alcohol problems (Gracey & King, 2009). Overall, the health of indigenous populations is far worse than that of nonindigenous peoples (Stephens, Nettleton, Porter, Willis, & Clark, 2005). The indigenous health profile consists of high infant and child mortality, high maternal morbidity and mortality, infectious diseases (i.e., respiratory and gastrointestinal infections, otitis, diarrheal diseases, malaria, HIV/AIDS), malnutrition, and a shorter life expectancy at birth. Social problems persist, such as drug and alcohol problems and domestic violence.

Although indigenous populations still deal with infectious diseases that have been overcome in many industrialized nations, chronic conditions are also present in indigenous communities. For example, obesity, diabetes, hypertension, cardiovascular disease, and chronic renal disease are prevalent. Indigenous peoples have unique nutritional deficiencies that may cause or exacerbate other conditions; iron, iodine, vitamins A and D, folic acid, and zinc are among these deficiencies (Gracey & King, 2009).

In the western, industrialized world, health is conceptualized in a pathogenic model as the absence of disease, and treatment is the course of action for illness. Indigenous conceptions of health and healing are more closely tied to holistic or integrative medicine. The Anishinabek (Ojibway) word “nmo bmaadis” conveys this difference. It means “living the good life” or “being alive well,” and it encompasses a strong belief in the balance of physical, emotional, mental, and spiritual, as represented in the medicine wheel (Wilson, 2003). The history of indigenous peoples as a culture stamped out by colonization reveals the imbalances experienced by indigenous people and sheds light on the structural and cultural factors that explain the extreme health disparities between indigenous and non-indigenous populations.

The primary explanations for indigenous health disparities are socioeconomic status, cultural/lifestyle shifts, and identity loss. Low socioeconomic status has consistently been linked to poorer health. This contributes to an influx in vaccine-preventable diseases, poverty, and malnutrition. Colonization introduced new diseases to indigenous people (Campbell, 2002) and upset traditional ways of cultivating the land for sustenance (Ohenjo et al., 2006). Urbanization and modernization of indigenous life has led to “overnutrition” as well and created an upsurge of “lifestyle” diseases, such as diabetes and cardiovascular disease. This can be traced to a high calorie, high fat, high salt, low fiber diet, minimal exercise, as well as environmental contamination and overcrowding (Gracey, 2002). The loss of culture, language, and identity has been tied to problems with drugs, alcohol,

mental illness, and violence among indigenous peoples (King, Smith, & Gracey, 2009).

Indigenous health is a multifaceted issue with many deeply rooted economic, social, and political factors. Successful strategies aimed at enhancing the wellness of this community will include economic resources, improved education, and access to health care, as well as a focus on cultural preservation. The historical context of the poor health status of indigenous persons provides insights into both root causes and solutions to disparities. Colonization played a major role in the depopulation of indigenous societies (Hardy, 1963) as well as subsequent poverty and impaired access to health care and social services (Attwood & Markus, 1999). To repair the hardships accrued over the aftermath of colonization, fair and culturally sensitive business practices between indigenous and nonindigenous populations are necessary (Baum, 2007). Improving indigenous health also requires adequate education, and scholars have noted that it is not simply access to education but culturally relevant education that may impact mental and physical wellness in indigenous populations (Dunbar & Scrimgeour, 2007).

Policy work related to indigenous health has made considerable strides since the turn of the twentieth century, although progress is slow. For example, the 1967 referendum revised the Australian constitution in order to transform indigenous peoples from noncitizens to citizens eligible for social welfare programs. Since then, policymakers have identified several initiatives for enhancing indigenous social position and health status. These include shelters for women, community education, arts and culture programs, legal advocacy, psychological counseling and resources, housing maintenance, and other efforts directed toward physical safety and psychosocial support. In order for these initiatives to work, projects must receive adequate funding, community acceptance, cultural competence, skilled workers, and an understanding of the structural and cultural roots of indigenous health disparities (Clapham, O’Dea, & Chenhall, 2007).

Indigenous peoples represent the origins of our healing modalities and our relationship

to our environment. Although now one of the most marginalized and underrepresented groups in the world, much can be learned by indigenous conceptions of health and healing (Bristow, Stephens, & Nettleton, 2003), which may help overcome the barriers to wellness in indigenous populations.

Cross-References

- [Canada, Quality of Life](#)
- [Community Resilience](#)
- [Indigenous Knowledge](#)

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Indigenous Inequality

- [Indigenous Health Disparities](#)

Indigenous Issues

- [Indigenous Health Disparities](#)

Indigenous Knowledge

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Synonyms

Aboriginal knowledge; Local knowledge; Traditional ecological/environmental knowledge (TEK); Traditional knowledge

Definition

The expressions, practices, beliefs, understandings, insights, and experiences of Indigenous groups, generated over centuries of profound interaction with a particular territory.

Description

Indigenous knowledge (IK) includes the expressions, practices, beliefs, understandings, insights, and experiences of Indigenous groups, generated over centuries of profound interaction with a particular territory. Its iterations and mechanisms are unique to each community, even where it shares certain features across groups by virtue of being embedded in a wider, common culture. In all locations IK is the foundation of Indigenous governance, ecological stewardship, social, ethical, linguistic, spiritual, medical, food, and economic systems, so that the continual production and reproduction of local, land-based knowledge is the basis of Indigenous identity and sense of place in the world, as well as of Indigenous groups' very survival as distinct peoples.

Indigenous knowledge is best viewed as a practical engagement – tested, augmented, and refined through generations of land-based practices. It cannot be considered apart from its applications, products, and articulations; this is so much the case that IK as a body is often referred to as a knowledge practice or “praxis.” It is contained in and expressed through songs, stories (including those referred to as myths or legends), proverbs, foods, institutions, skill sets, practices, beliefs, ceremonies, innovations and adaptations, languages, codes of ethics, protocols, art forms, and laws. Indigenous knowledge is highly dynamic, changing in response to both external and internal pressures. It is almost never insular, since few Indigenous groups today live lives bereft of global (particularly Western) influence.

Fundamentally experiential, relational, cumulative, and place-based Indigenous knowledge may be gained or refined through trial and error (experimentation), ritual, intuition or inspiration, observation, dreams or visions, interaction with nonhuman entities (including the land itself), apprenticeship, and peer-to-peer exchanges with other knowledge holders. Transmission is imitative and demonstrative and proceeds according to Indigenous values and cultural protocols governing access, application, generation or refinement, and sharing of knowledge.

This makes the uptake of IK a lengthy undertaking, involving specific, intense responsibilities to one's mentor and community. Direct (e.g., through formal education and intercultural interaction) and indirect (mainly via mainstream media) exposure to nonlocal knowledge can result in its being tested against and critically incorporated into an Indigenous frame. Thus new experiences and new information, rather than inevitably compromising, can validate and invigorate IK, imbuing it with new meaning and relevance. Indigenous knowledge is therefore stable and contemporary, rather than belonging or appealing to some static point in history.

Individual and Communal Aspects of IK

Some Indigenous knowledge will be held by the community as a whole, while other teachings will be held by specific individuals, families, or groups of practitioners (such as healers). Similarly, some knowledge is sacred and is never shared outside of specific community-level, initiation-mediated circles. Indeed, IK is segmentary, so that no one individual can be said to hold the knowledge of the group. Yet Indigenous knowledge is also communal, since it inheres in social practices and reciprocal relationships rather than individuals – it should be thought of not as static understanding, but as an interactive engagement. Further, its distribution in a population is not egalitarian, but varies with experience, expertise, talent, and/or authority – thus the bulk is held by Elders. Many Indigenous groups view knowledge as functioning like biodiversity so that redundancy, overlap, and variation strengthen the system as a whole.

Some Indigenous knowledge is held exclusively by women. Though the boundaries of the female sphere of IK vary from group to group, it often includes medicinal plant cultivation and preparation, maintenance of the seed stock of food crops, monitoring wild populations of small game and edible plants, and trapping and fishing. The decline of women's status under colonialism and the gendered aspects of Western knowledge production combine to render Indigenous women's knowledge especially vulnerable.

Role of Indigenous Knowledge in Quality of Life

The most general ways that IK affects the ► **quality of life** of Indigenous communities are ecological and sociocultural. In terms of ecology, it is the generation and application of IK that allowed most Indigenous communities to achieve an environmental equipoise, maintaining productive livelihoods, managing natural disasters, and conserving and sustainably developing natural resources. Relationships within an ecosystem under Indigenous care are governed by well-developed codes of ethics that extend kinship status to biotic and abiotic, human and nonhuman inhabitants of a specific territory, including plants, animals, watercourses, spiritual beings, weather systems, and geographical features.

Indigenous knowledge is vital for sustaining or retrieving social and cultural values and cohesion in the face of nonindigenous pressures. IK is often used to consciously reconfigure formal knowledge. It can ameliorate the powerful biases and ontological priorities with which academic/scientific understandings are vested and which serve to repeatedly delegitimate and supplant the Indigenous “other.” Reclamation and regeneration of IK is thus part of a wider, pointedly anticolonial struggle of Indigenous resurgence.

Because IK must be practiced to survive, and since Indigenous knowledge and Indigenous identity are mutually constitutive, new and renewed applications of IK have yielded significant successes in Indigenous communities, being central to the quality of life in them. These include the following:

- Heightened health stemming from the reintroduction of traditional foods and Indigenous healing modalities (including primary health care, psychosocial care, and preventative medicine)
- Improved social outcomes through the development of alternative justice mechanisms (versus those of the mainstream criminal justice system, in which Indigenous individuals are disproportionately represented)
- Achievement of greater ecosystem and agroecosystem resilience, along with higher and more nutritious agricultural yields, via

Indigenous environmental stewardship and traditional agricultural practices (protecting and enhancing biodiversity)

- Achievement in both academic and nonacademic spheres by virtue of Indigenous control of Indigenous education and the resurrection of traditional child-rearing practices

Threats to Indigenous Knowledge Systems

Although Indigenous knowledge systems have proven remarkably adaptable to social, cultural, and technological encroachment, their preservation and perpetuation is an ongoing concern. Massive depopulation due to epidemics and malnutrition, immediately upon and for hundreds of years following the arrival of colonial powers in traditional territories, resulted in an incalculable loss of Indigenous knowledge. Subsequently, forced and passive assimilation projects (particularly residential educational and religious conversion programs), incorporation into the cash economy (furthered today by the scaling-up of neoliberal economic globalization), outmigration for employment or education, enclosure and encroachment, modern “community economic development” initiatives, and the environmental degradation associated with industrialization have weakened or severed the individual’s bond with land and community, on which the generation and regeneration of Indigenous knowledge depends.

Issues arise in documenting Indigenous knowledge, which is usually conveyed via a combination of oral and nonverbal methods, is often transmitted through longstanding and reciprocal relationships, is practical and experiential, and is highly contextualized in a way not easily captured by textual or photographic methods or in film or audio recordings. Erosion of significant portions of IK in communities stems from the death of knowledge holders (typically Elders), intellectual predation, language loss, alienation or destruction of traditional territory, legal prohibitions on traditional practices, and the decline in perceptions of its relevance among younger generations. Serious concerns thus surround perpetuating the intergenerational transmission of Indigenous knowledge, supporting its local

implementation, securing access to (if not repatriating) the lands in which it roots, nurturing the non-colonial languages with which it is articulated, and protecting IK from for-profit exploitation.

Indigenous knowledge is fundamentally local in a way not expressed by other paradigms. Because it is socially clustered and is generated through land-based experiences, it cannot be uprooted (from either its geographic place or its emplaced human agents) and carried to other locations and remain fully intact. It is this characteristic that makes discussions of Indigenous knowledge inseparable from questions of an Indigenous right to traditional territory. Attempts to codify and sever it from its human agents are similarly damaging, with gross misinterpretation and misrepresentation being the least pernicious effects of dislocation. Even measures intended to be protective of Indigenous knowledge can be erosive. There is, for example, an ongoing discussion of the nature and extent of change wrought by moving IK from the oral and nonverbal to the textual realm, which assails fundamental properties like fluidity, situational responsiveness, and variation across practitioners (the articulation between personal experience and taught or more formal understandings).

IK in Policymaking, Global Governance, and Research

The need to protect and perpetuate Indigenous knowledge for both its intrinsic and instrumental value has been recognized in many global governance instruments, both binding and nonbinding, including the *Convention on Biological Diversity*; the International Labour Organization's *Convention concerning Indigenous and Tribal Peoples in Independent Countries (Convention 169)*; the "Rio Declaration" (aka *Agenda 21*); the United Nations' *Declaration on the Rights of Indigenous Peoples*; and the operating policies and "best practice" documents of the World Bank, World Intellectual Property Organization, and various United Nations bodies. Increasingly, Indigenous knowledge plays a role in policymaking and (sustainable) socioeconomic development, ostensibly to improve the quality

of life of Indigenous populations within nation states. In Canada, for example, the "traditional knowledge" of Indigenous communities is a necessary inclusion in land claim negotiations and comanagement agreements, as well as being incorporated into "resource management plans" for Indigenous territories. Moreover, individuals and organizations in many fields have pointed to IK's potential in developing solutions to modern problems from the domestic to the global level, calling for its use in scientific research, project planning, and policy development. These include specific applications in (agro)biodiversity, education, environmental rehabilitation, pharmaceuticals, and even intercultural dispute resolution.

Cross-References

- [Education, Traditional](#)
- [Indigenous Health Disparities](#)

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Indigenous Movements in Ecuador and Peru

- [Social Movement Strength in Ecuador and Peru](#)

Indigenous Peoples of Alaska

- [Arctic, Quality of Life](#)

Indigenous Peoples of Canada

- [Arctic, Quality of Life](#)

Indigenous Peoples of Finland

- [Arctic, Quality of Life](#)

Indigenous Peoples of Greenland

- [Arctic, Quality of Life](#)

Indigenous Peoples of Norway

- [Arctic, Quality of Life](#)

Indigenous Peoples of Russia

- [Arctic, Quality of Life](#)

Indigenous Peoples of Sweden

- [Arctic, Quality of Life](#)

Indirect Informants

- [Proxy Assessments](#)

Individual and Social Perspective of Rural Welfare

- [Rural Life, Quality of](#)

Individual Autonomy

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Synonyms

[Self-determination](#); [Self-regulation](#); [Volition](#)

Definition

Autonomy is a complex construct that concerns the regulation of behavior by the self, or the authorship of one's behavior, as opposed to behavior being controlled by forces perceived as outside the self. When individuals are autonomous, their behavior is self-organized and self-endorsed, and their actions are experienced as fully voluntary and authentic. The opposite of autonomy is feeling pressured, coerced, or compelled to act by forces or pressures perceived as external to the self.

Description

Across the history of philosophy and within social science disciplines, scholars frequently cite autonomy, or regulation by the self, as necessary to both optimal human functioning and ► **wellness** (e.g., Dworkin, 1988; Ryan & Deci, 2000; Sen, 1999). When an individual feels autonomous, he or she experiences vitality, performs better, and has greater mental and ► **physical well-being**. On the other hand, feeling that one's actions stem from pressures or controls leads to both more negative experiences and to lower quality performance. Experiences of autonomy are thus closely linked to ► **happiness**, and many argue that human autonomy and happiness are inextricably linked (Chirkov, Sheldon, & Ryan, 2011). For example, in an international survey exploring what predicts happiness, Diener, Ng, Harter, and Arora (2010) found that satisfying the need for autonomy was among the most important predictors of well-being around the globe. Simply stated, autonomy is what allows people to experience ► **eudaimonic well-being** and live deeply satisfying lives (Ryan, Huta, & Deci, 2008).

Throughout modern philosophy and psychology, there has been significant dispute over the concept of autonomy and how it is defined (Hill, 1991). It is sometimes conflated with terms like independence or separateness, and as such, many have argued that autonomy is not necessary for women, Easterners, or those in collectivistic societies, because these groups value interdependent relationships (e.g., Markus & Kitayama, 1991). However, it is important to note that independence and separateness are not necessarily associated with autonomy. Individuals can be autonomously dependent or interdependent, as when they willingly or choicefully rely on others, just as people can feel controlled or forced to be independent of or separate from others (Deci & Ryan, 2000; Friedman, 2000). Similarly one can be autonomously collectivistic or individualistic, often varying because of the situation. Indeed, because it enables more adaptive regulation, autonomy is consistently found to be important for the psychological health of men and women

across different developmental periods and in countries around the world (see Chirkov et al., 2011; Helwig, 2006).

Among contemporary psychological frameworks, autonomy is most central to ► **self-determination theory** (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000). SDT argues that autonomy is a basic and universal psychological need, essential to optimal ► **motivation** and well-being. Specifically, satisfying the need for autonomy is viewed as crucial for being able to regulate and balance internal and external demands in adaptive ways. Moreover, autonomy is associated with better mental health and lower ► **anxiety**, depression, somatic symptoms, and other negative experiences. Even at the daily level, fluctuations in satisfaction of autonomy impact daily happiness, vitality, and even physical health (Ryan, Bernstein, & Brown, 2010). Autonomy is therefore critical for fostering well-being and optimal functioning both moment to moment and across the life span.

SDT identifies a continuum of relative autonomy in the motives and regulations that underlie human behaviors (Ryan & Deci, 2000). The more autonomous a behavior, the more it is well internalized within the self and the more fluid, coherent, and effective the functioning that follows.

Within this continuum, *externally regulated* behaviors, those motivated by externally controlled rewards and punishments, are the least autonomous. When the rewards and punishments disappear, these behaviors are the most likely to cease because the individual has not internalized the motivation for doing the behavior. An example of this type of regulation is deciding to recycle waste only because there is a fine for not doing so. Moving up the continuum of relative autonomy, *introjected regulation* characterizes behaviors that emanate from the self but are accompanied by feelings of pressure and control. Here, individuals are motivated to avoid shame and guilt or by a desire to attain pride and/or gain approval from others. Recycling to avoid the guilt or to look environmentally conscious to others would thus be examples of introjected regulation. Both external and introjected regulations are

considered *controlled* forms of motivation (Deci & Ryan, 2000).

A more autonomous form of motivation is *identified regulation*, whereby the individual personally and consciously accepts the value and importance of the behavior. Identified regulations, being well internalized, persist over time and are reflected in higher quality behavior. Recycling because one believes it is truly helpful to the environment would exemplify identified regulation. Finally SDT describes *integrated regulation* as a highly autonomous form of motivation. Integrated regulations are motivated by identifications that are congruent and synthesized with other values and identifications – they are fully and reciprocally assimilated to the self. When integrated, a person's recycling behaviors would not only be self-endorsed but would also be congruent with the individual's lifestyle, politics, relationships, and consumption habits. Finally, ► *intrinsic motivation* represents another highly autonomous form of acting. When intrinsically motivated, a person acts because of the inherent interest in the activity, as when a child plays or an individual reads a book "for fun." Such behavior is highly autonomous – done freely and willingly. Considerable research has supported the view that these different forms of motivation, i.e., external, introjected, identified, integrated, and intrinsic regulations, fall along a continuum of autonomy and thereby differentially predict outcomes.

Important social settings like schools, workplaces, clinics, and families can support or undermine a person's autonomy and thus the wellness experienced in those environments. Autonomy supportive contexts allow people to authentically express themselves, accept people for who they are, and minimize the use of pressure and control (Legate, Ryan, & Weinstein, 2012). In contrast, controlling contexts are those that pressure people to be a certain way and convey that they are loveable only under certain conditions. Environments that are controlling and low in autonomy support undermine personal well-being. They can lead to internalizing problems in children like anxiety and depression, feelings of loneliness, and more relational aggression (Ryan, Deci,

Grolnick, & LaGuardia, 2006; Soenens, 2007). Autonomy supportive relationships, in contrast, help people feel more open and authentic, to assimilate and integrate, and to more energetically exercise their capacities and interests. In this way, parents, teachers, therapists, coaches, life partners, and supervisors play an important role in fostering autonomy in others and maximizing others' happiness and ► *quality of life*.

In summary, autonomy refers to regulation by the self or to self-determination and authentic volition. Autonomy has been discussed by philosophers as critical to human realization and has been shown to have benefits in empirical studies. Self-determination theory makes autonomy its core construct, and evidence does suggest that autonomy plays an important role in quality of life across the globe.

Cross-References

- [Anxiety](#)
- [Choice](#)
- [Collectivism](#)
- [Development](#)
- [Eudaimonic Well-Being](#)
- [Happiness](#)
- [Individualism, an Overview](#)
- [Interdependence](#)
- [Intrinsic Motivation](#)
- [Motivation](#)
- [Physical Well-Being](#)
- [Quality of Life](#)
- [Self-Determination Theory](#)
- [Wellness](#)

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Individual Growth Modeling

► Mixed Effects Models

Individual Quality of Life

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Synonyms

[Personal well-being](#)

Definition

The term “individual quality of life” is used to denote how well a person lives. The individual quality of the lives of multiple persons can be aggregated to obtain a number that reflect the typical quality of life in a collectivity, such as a nation. Yet the concept does not apply to social systems. One cannot say that a society lives well, since societies do not “live.”

Individual quality of life is synonymous with individual well-being. Unlike “quality of life,” the term “well-being” can also be applied on social systems. One can say that a nation is well. In this case one must realize that the well-being of the social system does not necessarily concur with the well-being (individual quality of life) of the people who live in that system (Veenhoven, 2009).

Description

Subjective Appraisal

How well a person lives can be assessed by that person him/herself. In this case “individual quality of life” is synonymous with “subjective well-being.” Subjective evaluations of one’s own life can concern various aspects of one’s life, such as career success, or one’s life as a whole. In the latter case subjective individual quality of life is synonymous with “happiness.”

Objective Judgments

How well a person lives can also be assessed using explicit criteria of the good life and such judgments can be made by informed outsiders. There are many notions of the good life, which do not always concur. Consequently, a person's quality of life might be judged as poor by one set of criteria and good using another set.

Mixed Appraisals

Much of the research in this field measures quality of life using indexes. Such indexes are often based on a questionnaire that involves questions on subjective evaluations of one's life (such as "do you feel respected?") and objective conditions (such as "what do you earn?"). This is common practice in studies on "health-related quality of life" (HRQOL) that combine questions on how healthy one feels with self-reports of actual fitness, such as one's ability to climb stairs.

Veenhoven (2000) argues that such indexes make little sense and that we should study the interrelationships between all these aspects of individual quality of life rather than put them in one hat.

Cross-References

- ▶ [Quality of life \(QOL\)](#)

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Individual Reductions in Working Hours

- ▶ [Part-Time Work](#)

Individual Values and Well-Being

- ▶ [Well-Being and Personal Values in Europe](#)

Individual Values and Well-Being in Migrants

- ▶ [Well-Being and Values of Immigrants to Spain](#)

Individual Welfare Function

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Synonyms

- [Utility function of income](#)

Definition

The individual ► [welfare](#) function is similar to the utility function of income, and it has been empirically estimated for large number of representative samples by means of the ► [Income Evaluation Question](#) since Van Praag (1971). The empirical applications in many countries have shown that it depends on, among others, family size, age, and own current income.

Description

The individual welfare function of income is roughly speaking synonymous with the utility function of income, a well-known concept in economics. In the economic literature until about 1990, it was frequently assumed that individual well-being depended on income. It was recognized that one may distinguish a narrow concept of welfare and a broader concept of

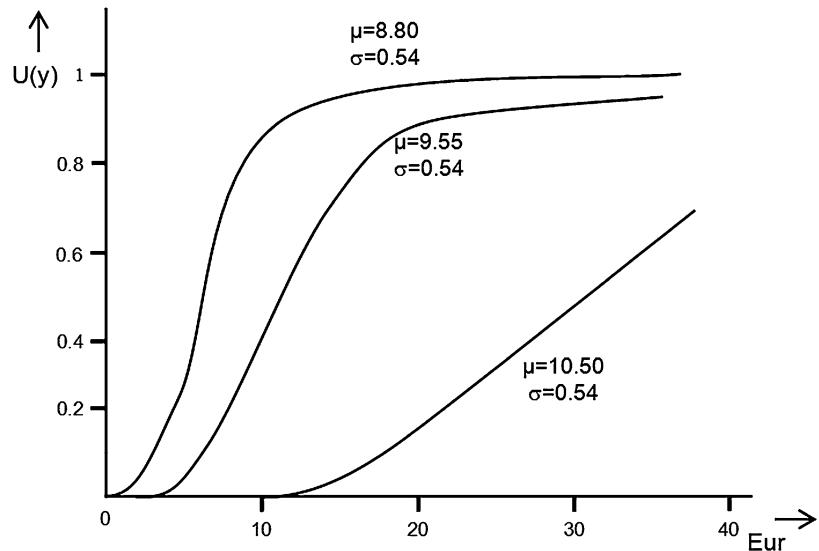
well-being where the difference is that welfare was income determined, while well-being depends on many other factors as well like health, marital status, and ► **job satisfaction**. Since Pareto (1909) it has been recognized in economics that all those concepts, for which authors use alternative names like utility, welfare, ophelimity, ► **well-being**, and ► **happiness**, are very difficult to define in an operational way. Actually, an operational definition implies the existence of a generally accepted measurement method. Such a method did not exist and many prominent economists like Samuelson, Debreu, and Houthakker argued that consequently a cardinal utility concept was impossible and also not necessary for the development of economic theory. Hence, researchers were content with ordinal comparisons of well-being, where individuals were assumed to be able to compare two situations for which they could say that the first situation was to be preferred to the second or inversely or where they could say that they were indifferent between the two situations. Van Praag (1968) was one of the first economists in post-World War II economics who dared to suggest that the measurement of a cardinal welfare concept might not be logically impossible and that, moreover, in economic theory we cannot dispense with the cardinal utility concept. The theoretical importance for the theory of savings and the theory of decision under uncertainty is rather obvious. In both cases we use sums of utilities, either weighted with a time preference discount or with probabilities on the various outcomes. Such sums do not make sense if we add ordinal utilities.

For the measurement issue, Van Praag drew an analogy with physics. The concepts of distance, electricity, or the volume of sound started as metaphysical concepts, and it was only later on when one constructed measurement methods. For instance, for distance more or less arbitrarily, the meter has been defined as the measurement unit, and volume of sounds are mostly measured in terms of decibels, which is based on logarithmic measurement. Following this example, Van Praag suggested to measure happiness on a bounded scale, say, between 0 % and 100 %,

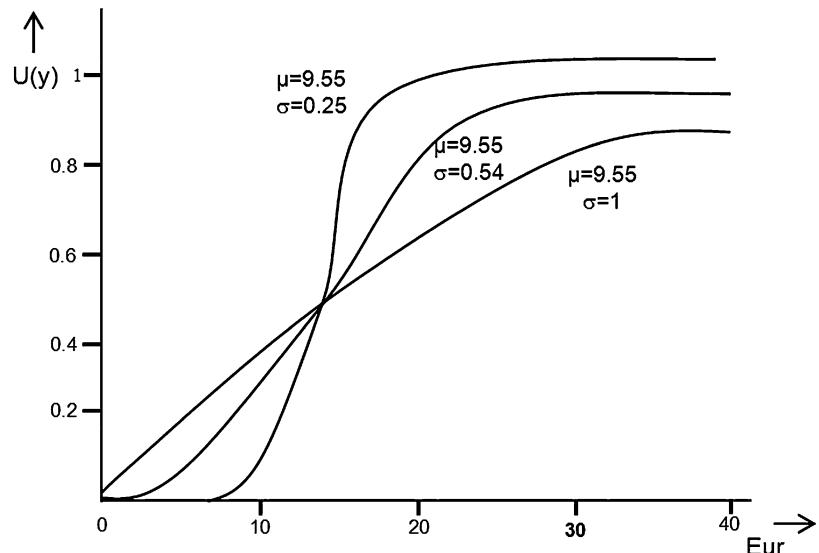
by asking individuals how happy they would feel with various income levels. This was operationalized by the ► **Income Evaluation Question** which was first posed in Van Praag (1971). We notice that in practice Van Praag supplied the respondent with verbal levels, e.g., "bad income" and "good income," while the responses were the income amounts associated with those verbal levels. The verbal labels were then translated into numerical values by dividing the 100 % range in equidistant intervals. Moreover, we stress that in line with the idea in the seventies that utility was silently understood to be utility of money, the measurement results have to be understood as income satisfaction measurement instead of as the wider concept of happiness.

Van Praag argued in (1968) that the utility function of income, which he called *individual welfare function of income* (WFI) would be roughly isomorphic with a lognormal distribution function. This function is defined as $\Lambda(y; \mu, \sigma) = N(\ln(y); \mu; \sigma)$. That is, the logarithm of y normally distributed. To get some insight in the function, we present its graph for three values of the parameter μ and constant σ in Fig. 1, while we sketch the function for constant μ and varying σ in Fig. 2. Roughly speaking an increase in the parameter μ by $\Delta\mu$ implies a decrease in income satisfaction, which can be repaired by an equivalent increase in income by a factor $e^{\Delta\mu}$ which approximately equals $(1 + \Delta\mu)$ for small $\Delta\mu$. An increase in σ means a stretching of the function about the median value that is reached at e^μ , which value does not depend on σ . The function was first estimated in Van Praag (1971). Since then, the function has been estimated for surveys in many countries. The fit to the six, seven, or at most nine data points per individual is always found to be very good. The parameter μ has been seen to vary a great deal over individuals. A typical outcome, when we regress the individual μ -values, is an equation $\mu_n = 0.10 \ln(fs_n) + 0.60 \ln(y_n) + \beta_o$ where we put in for the coefficients the estimated values which have been found on average over a number of many large-scale surveys. First, the positive value of 0.10 indicates that someone

Individual Welfare Function, Fig. 1 The welfare function of income of different values of μ



Individual Welfare Function, Fig. 2 The welfare function of income of different values of σ



needs more if one has a larger family (fs). The value 0.60 indicates that norms on what is a good income shift with own income. This phenomenon has been coined ▶ **preference drift**. It is roughly the same phenomenon found by Brickman and Campbell (1971) which is called in the literature the ▶ **hedonic treadmill**. Attempts to explain σ in a similar way were not very successful till now, although there are indications that in countries with more income inequality, σ tends to be higher

as well. There is a mass of studies where other explanatory variables are added. We refer to Hagenaars (1986); Hartog (1988), and more recently to Van Praag and Ferrer-i-Carbonell (2004) for overviews.

Cross-References

▶ **Household Income, Satisfaction with**

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Individual Well-Being

► Subjective Well-Being (SWB)

Individualism, an Overview

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Definition

Individualism is a type of culture under which people prefer to think themselves more than others and to act for the sake of their own interests instead of other group or communities.

Description

Individualism generally is defined as a contrasting culture with ► **collectivism**.

According to Hofstede (1980a, 1991), distinction between two cultures depends on to the extent of which individuals are integrated into groups. In other phrase, “it is about the degree to which people in a country prefer to act as individuals rather than as members of groups” (Hofstede, 1991, p. 6). Individualism is a loosely knit social framework in which people are supposed to take care of themselves and of their immediate families only, whereas collectivism is characterized as a tight social framework in which people distinguish between ingroups and outgroups. Under collectivism, people expect their ingroup to look after them, and in exchange for that they feel they owe absolute loyalty to it (Hofstede, 1980b, p. 45). In individualist cultures, people often drop those ingroups that are inconveniently demanding and form new ingroups (Triandis, 1980). As a result, in individualist cultures, demands by ingroups on individual contributions are highly segmented, requiring contributions only at certain time and place or of a certain kind; in contrast, in collectivist cultures the demands are diffuse (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988, p. 324).

In ► **Quality of Life (QOL)** studies, the main focus puts on how two cultures have impact on ► **subjective well-being**. By using three proxies for individualism, such as Hofstede measure and Triandis rating, Diener, Diener, and Diener (1995) showed that only individualism persistently correlated with subjective well-being when it controlled other predictors, high income, human rights, and societal equality. Oishi, Diener, Lucas, and Suh (1999, p. 988) also reported that, controlling for the level of the mean family income, the size of the association between satisfaction with individualistic domains and ► **life satisfaction** was consistently larger in individualist nations than in collectivist nations.

Based on a meta-analysis, Fishcer and Boer (2011) reported that despite nonlinear trends and interactions between wealth and individualism, the overall pattern appears that greater individualism is consistently associated with more well-being. Wealth may influence well-being only via its effect on individualism.

Diener et al. (1995) provide reason the higher subjective well-being among individualistic society: First, this might be so is that individualistic societies afford an individual more freedom to choose his or her own life course. Second, successful people in individualistic societies may be more likely to attribute success to themselves. Although individualists may have a weaker social network in times of distress, in favorable times they have more freedom to pursue their individual goals (p. 862).

Suh and Oishi (2002) also provided the similar reasons for higher ► happiness in individualistic society. When it comes to subjective well-being, having a great deal of personal freedom might be very important. In individualist cultures where there is much personal freedom, people have a better chance to choose and invest their time in personally rewarding life projects, evaluate their happiness using more self-flattering standards, and try harder to view their lives in a positive angle.

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Individualized Quality of Life Measures

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Definition

Measures that include the individual respondent's views about the content and/or importance of domains being measured.

Description

The great majority of patient-reported outcome (PRO) measures are standardized instruments that are based on summated rating scales with fixed content and equal weights for items or questions (Garratt, Schmidt, Mackintosh, & Fitzpatrick, 2002). Individualized measures have been developed to have greater relevance to the individual respondent by asking them to give their own domains or aspects of life and/or weight the importance of these domains.

There are three broad categories of individualized measure. First, those for which respondents give domains which they then rate in terms of how they function or perform in relation to them. Second, those that ask respondents to give weights which often take the form of ratings of importance. Third, fully individualized measures include both forms of individualization.

As with standardized measures, individualized measures can be population or disease

specific or generic and, hence, applicable across populations regardless of any underlying health problems.

Measures with Individualized Content

These measures ask respondents to give domains or aspects of life which may form the content of one or more components of the measure. The original Asthma Quality of Life Questionnaire (AQLQ) included 32 items which formed four domains of activities, symptoms, emotional function, and environmental exposure (Juniper, Guyatt, Ferrie, & Griffith, 1993). Interviews with asthma patients informed the content of the measure, and following the finding that a large number of activities were mentioned by patients as being affected by their asthma, the developers decided to make five of the 11 items within the activities domain individualized. For this domain, respondents are asked to give activities that are important to them. The measure includes a prompt list of activities based on the interviews. The remainder of the measure is standardized, and respondent ratings for all items within each domain, including the five that are individualized together with the remaining six within the activities domain, are equally weighted and summed.

Measures with Individualized Weights

These measures have standardized items, but respondents give them an importance rating which functions as a weighting in the calculation of scores. Items given higher importance ratings make a greater contribution to the scale scores. The Audit of Diabetes-Dependent Quality of Life (ADDQoL) questionnaire includes 13 items assessing physical functioning, symptoms, psychological well-being, social well-being, role activities, and personal constructs (Bradley et al., 1999). The 13 items have both function and importance ratings that use seven- and four-point descriptive scales, respectively. The two ratings are multiplied and summed to give an overall score.

Measures that Are Fully Individualized

These measures ask respondents both to give areas and to weight them, usually in terms of

importance, as well as rate their function or performance in relation to them. The ► [Patient-Generated Index \(PGI\)](#) and ► [Schedule for the Evaluation of Individual Quality of Life \(SEIQoL\)](#) are two of the most widely used fully individualized measures within health-related research.

The PGI was originally developed for use in four condition-specific groups of patients with low back pain, menorrhagia, dyspepsia, and varicose veins (Ruta et al., 1994) but has been adapted for use and evaluated for measurement properties in several other populations that have including carers, various health problems, and mothers (Martin, Camfield, Rodham, Kliempt, & Ruta, 2007). The SEIQoL is a generic measure that was originally evaluated in patients undergoing hip replacement (O'Boyle et al., 1992) and has been subsequently evaluated in several populations including various health problems (Wettergren, Kettis-Lindblad, Sprangers, & Ring, 2009).

Both measures have three stages in their completion. In the first, respondents give five areas of life that are important to them or affected by their health problem. In the second stage, respondents rate their function or performance in these areas. The PGI also asks respondents to rate the rest of their life or the rest of their life affected by their health problem. Finally, an importance weighting is given by the respondent in the case of the PGI and by means of judgment analysis in the case of the SEIQoL. The PGI has largely been self-administered. The use of judgement analysis makes analysis makes the SEIQoL unsuitable for self-completion, and while the more recent use of direct weighting (SEIQoL-DW) simplifies the final stage, this version of the measure is also interview-administered (Wettergren et al., 2009).

Discussion

The main advantage of individualized measures is that they allow the respondent to influence the content and/or weight attached to the domains or aspects of life that they measure. For this reason, it has been argued that individualized measures have greater

content validity than measures based on summated rating scales with content that is standardized. Moreover, in the context of health-care evaluation including clinical trials, it can be argued that individualized measures have greater potential to measure changes in quality of life that are of importance to the individual patient. Individualized measures may be especially relevant for diseases and health problems where there is large variation in the aspects of life affected across patients. The inclusion of individualized components within disease-specific measures has been based on this consideration (Guyatt, Berman, Townsend, Pugsley, & Chambers, 1987; Juniper et al., 1993).

The disadvantages of individualized measures largely stem from the additional respondent burden inherent in such measures. This has implications for modes of administration, acceptability to respondents, and data quality. Measures that include just one aspect of individualization, including the content for one domain within the AQOLQ (Juniper et al., 1993) and importance ratings for the ADDQoL (Bradley et al., 1999), are usually suitable for self-completion. However, the complexity of some individualized measures such as the SEIQL means that they have been administered by interview (O'Boyle et al., 1992). The PGI has largely been used in self-completed form and often alongside standardized measures including the ► SF-36 and SF-12 (Haywood, Garratt, Dziedzic, & Dawes, 2003); however, completion rates are generally lower for the former, and there is some evidence for response bias when compared with completion for standardized measures such as SF-36 (Ruta, Garratt, Leng, Russell, & Macdonald, 1994). These disadvantages may limit the appropriateness of individualized measures as PROs or primary endpoints in applications such as health-care evaluation including clinical trials. Efforts to increase acceptability to respondents have resulted in simplification of scoring and weighting within the PGI (Haywood et al., 2003; Martin et al., 2007) and the use of direct weighting for the SEIQL-DW (Wettergren et al., 2009).

Cross-References

- Patient Generated Index
- SEIQL: Schedule for the Evaluation of Individual Quality of Life
- SF-36

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Indoor Lighting

- Light and Quality of Life

Inductive Logic

► Validity, Logical

Industrial Toxins Proximity and Childhood Health and Learning

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Synonyms

Environmental ascription and health

Description

Children are especially susceptible to suffering the harms of exposure to industrial toxins released into the environment (Grandjean & Landrigan, 2006). Certain developmental neurotoxins and respiratory toxins are known to have more of an impact on the ► [quality of life](#) (especially the ► [health](#), learning, and behavior) of children than adults. Exposure to these toxins often results in ► [developmental disabilities](#), behavioral problems, and a reduction in IQ (Carpenter, 2005). These toxins severely impact children's health and learning potential, thereby limiting later life chances at success. Children might be exposed to these environmental threats at home, in their neighborhood, or while in school. Further, not all children in the USA bear an equal burden of exposure to industrial pollutants. Many environmental inequality (EI) studies have shown that sources of toxic pollution are often located near communities inhabited by a disproportionate number of minorities and the poor (Bullard, Mohai, Saha, & Wright, 2007). Some recent research on these issues combines the focus of traditional environmental inequality studies with

a novel focus on children as a particularly vulnerable subset of already disadvantaged populations (Pastor et al., 2004).

This recent emergence of studies that support the finding that proximity of schools to environmental pollution impacts children's academic performance and ► [health](#) speaks to the growing knowledge and concern around these issues. The environmental inequality field should continue to focus on the understudied impact of school siting and the effects on the most vulnerable subset of the population, children. The foundational research in the areas of EI and research on the effects of toxins on children's health and learning are presented below. The final section outlines the concept of "environmental ascription" and related research at the intersection of EI and childhood exposure to developmental toxins and the impact on health and learning, arguing that children's proximity to industrial toxins should be studied in terms of racial and class inequalities (and vice versa).

Environmental Inequality

In understanding the relationship between proximity to industrial toxins and its effects on quality of life for children, it is important to bear in mind that certain subsets of the US population face a disproportionate risk of being proximate to industrial pollution. This fact has been extensively explored in the academic literature in the form of environmental inequality (EI) and environmental justice research. Beginning with a landmark study commissioned by the United Church of Christ in 1987, this literature partly consists of quantitative findings that establish patterns of industrial and hazardous waste facility sitings in communities that are populated by a concentration of minorities and/or the poor that is disproportionate relative to the concentration of these populations at a state or national level (Bullard et al., 2007). Although there are some inconsistencies and regional variations in this literature – primarily due to methodological differences – the overwhelming consensus is that environmental inequality, or environmental racism, is a problem in the United States (Saha & Mohai, 2005).

Further, some scholarship in this area uses a qualitative approach, uncovering further evidence of the existence of, and the driving processes behind, patterns of environmental inequality (Bullard, 1990). This part of the literature has been more contested. Some studies find that toxic facilities are deliberately sited in vulnerable communities (either due to prejudice or corporate desire to follow the “path of least resistance”), while others argue that market forces lead polluting corporations and vulnerable populations to seek out the areas where land is at the lowest value, and still others note the importance of historical patterns of discrimination in zoning and real estate practices. Often times, a multiplicity of these factors may be at work, depending upon the geographic and socio-historical circumstances of a particular case (Pellow, 2000).

While much attention has been paid to how patterns of EI are established and the processes behind these patterns, the amount of work on the consequences of EI remains an understudied area (Brulle & Pellow, 2006). However, some recent research has begun to shed light on the links between industrial pollution, EI, and children’s health. The effects of proximity to industrial pollution on children’s health are an important and growing topic of study. This work is especially important to link with the EI literature because children constitute an especially vulnerable subset of the already vulnerable populations that are being overburdened with exposure to toxins in the USA. Before the intersection of EI and pollution’s impacts on children’s health can be discussed in detail, however, it is important to understand why children are especially vulnerable to the effects of proximity to pollution.

Children’s Health

Children are considered more susceptible to environmental toxins for a number of reasons. Socio-logically, children cannot make choices about their environment; it is up to adults to make the right decisions to ensure that they are protected. Biologically, children drink more water, eat more food, and breathe more air per body weight when

compared with adults. For example, the air intake of a resting infant is twice that of an adult (Landrigan, Kimmel, Correa, & Eskenazi, 2003). Additionally, the hand-to-mouth behavior of children and their play close to the ground increases their exposure to low-lying toxins. The implication of these factors is that children have a disproportionately heavy exposure to environmental agents compared to adults (Landrigan et al., 2003).

Children also have a much less developed metabolic pathway than adults, which affects the absorption, metabolism, and excretion of toxic chemicals. This can be beneficial for infants that may not possess the correct metabolites to induce a toxin effect but in other cases can be detrimental. Additionally, the blood-brain barrier, a network of tight junctions in the central nervous system that is of vital importance in keeping toxins from entering the brain, is much less developed in children than in adults. During development of the fetus and through childhood, “children are undergoing rapid growth and development, and their delicate developmental processes are easily disrupted” (Landrigan & Carlson, 1995). Key physical features and neurological connections are formed through precisely timed chemical interactions, where each developmental stage must be reached on schedule and in the correct sequence. As described by Grandjean and Landrigan (2006, 2), “Because of the extraordinary complexity of human brain development, windows of unique susceptibility to toxin interference arise that have no counterpart in the mature brain, or in any other organ. If a developmental process in the brain is halted or inhibited, there is little potential for later repair, and the consequence can therefore be permanent.” Consequently, any chemical disruption can lead to neurological and reproductive dysfunction earlier in life, or be the trigger for chronic disease later in life (Landrigan et al., 2003).

Even as an increasing amount of research emerges that demonstrates environmental inequality that strengthens the link between (a) chemical exposure and (b) detrimental health outcomes billions of pounds of toxins are still

released into the air, land, and water. One group of toxic pollutants that is currently under increased scrutiny is developmental neurotoxins, those toxins that affect the nervous system during fetal and childhood development. These chemicals not only impact general health, but they are associated with shortened attention span, increased impulsivity, heightened aggressiveness, slowed motor coordination, and impaired memory and language skills. Grandjean and Landrigan (2006, 8) state that “the consequences [of exposure] are increased likelihood of school failure, diminished economic productivity and possibly increased risk of antisocial and criminal behavior.” According to a report titled *Polluting Our Future* compiled by the National Environmental Trust, Physicians for Social Responsibility and Learning Disabilities Association of America (2000, 1), “approximately half of all emissions are known or suspected developmental or neurological toxins, total estimated releases of these substances to air and water could be as high as 24 billion pounds annually.” The increased release of these toxins has been linked to the rise of developmental, learning, and behavioral disabilities in the United States (Grandjean & Landrigan, 2006). Other studies have corroborated this link, finding that approximately 3 % of developmental disabilities are directly attributed to neurotoxic environmental exposures and that another 25 % arise out of interactions between environmental toxins and genetic susceptibility. Though there exists a plethora of toxicological and biological research that provides evidence of children’s susceptibility to toxins, little research exists from a toxicological perspective that makes a precise connection between the impacts of single or multiple environmental toxins and specific neurological disorders.

Environmental Ascription

While both (a) children’s health and well-being and (b) environmental inequality receive a great deal of public and scholarly attention, only limited research explicitly addresses the links among environmental pollution, children’s health, and

education outcomes. Three empirical studies that do explore these links directly include Pastor et al. (2004), Lucier, Rosofsky, London, Shandera, and Scharber (2011), and Mohai, Kweon, Lee, and Ard (2011). Each is a case study focused on a different region of the United States. Pastor et al. (2004) was the first to combine all of the aforementioned factors to research the impact of schools’ proximity to polluters on educational outcomes in their case study of Los Angeles, California. In order to assess the impact of “place” on intellectual capacity and ► **human capital**, Pastor and colleagues look at the effect on average academic performance scores of two types of pollution variables: (1) the presence of a polluting facility within 1 mile of the ► **census** tract containing the schools and (2) a respiratory-hazard index based on emissions data.

More recently, Mohai et al. (2011) examine the extent of air pollution around all public schools in Michigan to determine whether air pollution threatens children’s health and academic performance. Risk-Screening Environmental Indicators (RSEI) data and ► **GIS** software were used to estimate the toxic air pollution within a 2 km radius around each school. These results help to determine if more schools are located in heavily polluted areas, if these schools have higher percentage minority and low-income populations, and if a link exists between air pollution, academic performance, and health. Both Pastor et al. (2004) and Mohai et al. (2011) found that, independent of other school-level variables that might impact academic performance, schools located in areas with the highest levels of pollution had significantly lower academic performance levels.

Lucier et al. (2011) replicates and extends Pastor et al. (2004) in East Baton Rouge (EBR) Parish, Louisiana, a “hot spot” for developmental neurotoxins. Their findings are consistent with the findings of Pastor et al. (2004), showing an independent association between proximity to polluters and lower school performance, in addition to associations with proximity and race and class. These authors also make explicit sociological links between these factors, introducing

the concept of “environmental ascription.” Ascription is a term typically associated with inherited characteristics that affect future life chances (and by extension, quality of life) such as race, class, and gender. Environmental ascription thus implies that, in addition to these other characteristics, children’s “place” should also be considered an inherited characteristic that, when threatened with environmental hazards, may limit their chances later in life. This concept is illustrated by the data in this series of studies which suggest that the consequences of the additional environmental ► **stress** caused by a school’s proximity to pollution further erodes human capital beyond racial and socioeconomic disadvantage, which can manifest itself in reduced educational achievement within the public school system (Pastor et al., 2004).

The broader implication of certain groups of people facing systematically lower life chances and ► **quality of life** is the structural reproduction of social inequality. Children are biologically more vulnerable to toxic chemicals’ deleterious effects on health and learning. This means that children who are proximate to such toxins are at risk of a loss of “human capital” and a diminished quality of life. Often, due to the pattern of EI in the USA, these are the same children who are already faced with a human capital “deficit” in the form of limited prospects for ► **social mobility** and improvement of life chances. Thus, the same populations who have been victims of social inequality historically are spatially situated in such a way that promotes the reproduction of this inequality. For these reasons, understanding the research on industrial toxins proximity and children’s health and learning requires a multidisciplinary understanding of geographic, biological, and sociological processes. While research has brought increased analytical clarity to this process, there is still much more work to be done in each of these arenas in order to more fully elaborate the causes, consequences, and nature of the relationship between children’s health and industrial toxins proximity, particularly from a quality of life perspective.

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Inequality

- **Dispersion**
- **Income Distribution**

Inequality Crystallization

► Social Inequalities

Inequality in Quality of Life

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Synonyms

Inequality, quality of life

Definition

Inequality in quality of life can be defined as any distribution of quality of life across a set of people that deviates from an equal distribution. Quality of life may be measured as objective living conditions, ► [subjective well-being](#), or a combination of both. From an egalitarian point of view, inequalities pose an ethical problem to society, since often they are a result of exploitation and unequal power relations. Also from a functional perspective, gaping inequalities might affect society negatively (Jencks, 2002), although it is difficult to say what the optimal extent of inequalities is.

Traditionally, the gold standard in sociological and economic inequality research is the distribution of income. The quality of life perspective claims that money is not everything and that one should focus more broadly on things that “matter to people in and for their lives, well-being in short” (Ringen, 2006: 1). In this spirit, multidimensional approaches are used to capture QOL inequality more fully; alternatively, summary measures of subjective quality of life such as ► [satisfaction with life as a whole](#) are employed. Yet to date, there is neither a consensus among scholars how quality of life is measured best nor how QOL inequality should be measured.

Within societies, inequality can be investigated either between person and households or between social groups such as classes and strata, educational groups, gender, age groups, and ethnic and racial groups. Which group differences are important and rank high on the public agenda varies from place to place. Another important distinction is between micro- and macro-approaches: Whereas microlevel approaches describe and explain QOL inequality with the help of individual and/or household characteristics, macrolevel approaches used in cross-national research address the extent of inequality within a nation with the help of societal characteristics.

Description

Microlevel Approaches

A huge number of academic articles and social reports at least touch upon the issue to what extent QOL is distributed unequally across groups and individuals. A milestone of inspiration is the Swedish level-of-living approach, developed in the late 1960s (Erikson, 1993). Level of living is defined as the individual’s command over resources through which the individual can control and consciously direct his living conditions, and measured in nine areas of life. The inequality perspective employed is a group perspective: How large are differences in living conditions between various population groups? Over time, is there more or less inequality between them? The Swedish level of living surveys, carried out for the first time in 1968, focus exclusively on objective resources and conditions while excluding people’s subjective evaluations, which are seen with skepticism. A similar skepticism concerns the indexing of information across life domains. Closest to an overall index comes a deprivation index, which counts problematic conditions in five domains: health, economic resources, political resources, social relations, and housing. In general, the Swedish approach emphasizes the complexity in QOL inequality across groups.

This approach was very influential for social reporting in other countries, e.g., the Netherlands. Covering a number of life domains, the Dutch Living Conditions Index (LCI) is typically broken down by major social categories in order to show the extent and evolution of group inequalities in the Netherlands (Boelhouwer & Stoop, 1999). The ► [German Welfare Surveys](#) and their related series of German Social Reports (the German *Datenreport*) also follow the group approach to QOL inequality but address not only objective living conditions but differences in subjective quality of life as well (Glatzer & Zapf, 1984). The concept of multiple deprivation perhaps follows closest the Swedish tradition. Typically, deprivation research counts problematic living conditions across a smaller number of life domains, including income and living standard. A recent example are the Europe-wide reports on deprivation issued by the ► [European Foundation for the Improvement of Living and Working Conditions](#) (Russel & Whelan, 2004; Whelan & Bertrand, 2008).

Macrolevel Approaches (I): Inequality in Objective QOL

Overall Inequality

Typically, the extent of inequality within nations is measured as the ► [Gini coefficient](#) of ► [income distribution](#) (Firebaugh, 2003). Yet it is now widely acknowledged that income is but one component of QOL. A few studies compare overall inequality in nations for components other than income, e.g., for ► [education](#) (Thomas, Wang, & Fan, 2001) and longevity (Hicks, 1997). Even fewer studies follow a broader approach to QOL, e.g., by measuring the difference in ► [human development](#) between the highest and the lowest income quartile (Grimm et al., 2010).

The recent years brought a number of innovative measures, most importantly the Inequality-adjusted ► [Human Development Index](#) (IHDI) (UNDP, 2010). For 139 countries, the IHDI measures the level of human development of people in a society, discounted for respective inequalities in health, education, and income, the three components of human development. Under

perfect equality, the scores for Human Development Index (HDI) and IHDI are identical. The more unequal human development is distributed, the more falls the IHDI short of the HDI. In other words, the extent of QOL inequality is revealed by the percentage loss in HDI points. Thus, in itself, the IHDI is not a measure of QOL inequality, but one can arrive at such a measure when comparing a countries' IHDI and HDI scores.

The average loss in HDI due to inequality is about 22 %. Inequality is lowest in the Czech Republic (6 %) and largest in Mozambique (45 %). People in sub-Saharan Africa experience the largest inequality in all three dimensions of human development, followed by South Asia and the Arab States. Countries with lower human development tend to have higher QOL inequality, whereas high-developed countries and the formerly socialist countries in Europe and Central Asia are rather egalitarian. A drawback is that the IHDI does not account for overlapping inequalities and that no time series data are available.

In contrast to IHDI, the newly established Multidimensional Poverty Index (MPI) focuses on deprivation in QOL that goes beyond inadequate income (UNDP, 2010). Guided by the concept of human development, ten indicators for living standards, education, and health are combined. In addressing absolute poverty, the MPI captures both an inadequate level of QOL and its unequal distribution.

Gender Disparities

Three other measures devised by the UN particularly address gender inequality. The Gender Empowerment Measure (GEM), launched in 1995, evaluates women's standing vis-à-vis men in economic and political life (UNDP, 1995). It combines women's share of seats in parliaments, women's shares of high-level and professional positions, and the gender income gap. The best performing countries (greatest equality) are in Scandinavia: Norway, Sweden, Finland, and Denmark; the worst performing countries (greatest inequality) are predominantly from the Arab world: Saudi Arabia, Egypt, and Yemen, joined by a South Asian country, Bangladesh. Gender empowerment inequality is smaller in

more modern countries, but culture and religious legacies have a strong effect as well (Lane & Ersson, 2002). The measure has been criticized for its urban elite basis, which makes GEM more relevant for developed countries (UNDP, 2010). Another drawback is the income gap component, which has to be estimated for many countries.

Another UNDP measure, the Gender-Related Development Index (GDI), is *not* a direct measure of gender inequality (Schüler, 2006); rather, it represents a country's Human Development Score adjusted downward for respective gender disparities. The percentage difference between GDI and HDI indicates how large gender disparities are. Respective country rankings are very similar to those for gender empowerment. The GDI also shares some of GEM's problems, e.g., the many imputations for the income gap. Strangely enough for an equality measure, in the health domain, the GDI favors women over men in assuming it natural that women should live about 5 years longer than men.

To heal these and other problems, UNDP (2010) recently launched the Gender Inequality Index (GII). This index considers inequalities between men and women in three dimensions, the labor market, empowerment, and reproductive health. Similar to the IHDI (see above), the GII captures the percentage loss in QOL due to gender disparities. The scale of disadvantage varies enormously across the globe. The most gender-egalitarian countries are The Netherlands, Denmark, Sweden, and Switzerland; the most gender-inegalitarian countries are Mali, Niger, Congo, and Yemen. Averaged for world regions, gender inequality is highest in sub-Saharan Africa and the Arab states and lowest in the developed countries of the west. There is a huge overlap between general QOL inequality and gender disparities. When splitting up the GII into its components, reproductive health is the largest contributor to gender inequality everywhere. This finding is particularly noteworthy, since reproductive health is the one dimension which is most doubtful as an indicator of gender inequality; by definition, indicators such as maternal mortality and adolescent fertility have

no male counterpart; hence, they seem to capture the general level of development of a country, rather than gender disparities. Another multidimensional index of gender inequality is the Standardized Measure of Gender Inequality (Dijkstra, 2002).

Macrolevel Approaches (II): Inequality in Subjective QOL

Since QOL can also be indexed by subjective indicators, another approach to QOL inequality is happiness inequality, which can be defined as the heterogeneity of appreciation of life as a whole within a nation (e.g., ► [life satisfaction](#)). Since statistics known from income distribution such as the Gini coefficient have proven to be unsuitable to summarize the extent of happiness inequality, Win Kalmijn and Ruut Veenhoven (2005) recommend the standard deviation of observed happiness as the most simple and most informative measure. The standard deviation is also used to compute ► [Inequality-Adjusted Happiness](#), an indicator of societal performance which marries utilitarian and egalitarian ideals (Veenhoven & Kalmijn, 2005).

Others argue that the standard deviation might give an incorrect account of the existing happiness inequality, for technical reasons. A refined statistics which solves this problem is the Percent Maximum Standard Deviation (Delhey & Kohler, 2011). To a large extent, results obtained with this new measure and the standard deviation are very similar, both with respect to country rankings and correlates of happiness inequality. For example, it is an established finding in cross-national research that social progress drives down happiness inequality – irrespective of which measure of happiness inequality is used (Berg & Veenhoven, 2010; Delhey & Kohler, 2011; Ott, 2005). Yet scholars disagree whether a country's income inequality translates into happiness inequality: It does not if the standard deviation is used (Berg & Veenhoven, 2010; Ott, 2005), but it does if the Percent Maximum Standard Deviation is used (Delhey & Kohler, 2011). It remains to be seen which statistics of happiness inequality will eventually become accepted as the standard measure.

Macrolevel Approaches (III): Global Inequality
There is a growing interest in analyzing QOL inequality of the entire international system (between-countries inequality). Typically, this is done for objective QOL. The starting point is a measure of national QOL, say, the Human Development Index, for a given set of countries; then the inequality between countries is computed by means of the Gini index or a related measure of concentration. There are two different ways of doing the computation: The first approach simply takes each country as one unit of analysis, no matter how small or large. As a result, Luxembourg (500,000 people) counts as much as China (1.3 billion people) for the inequality coefficient. This approach reveals the level of *intercountry inequality*. The second approach weighs the countries according to their population size and hence reveals the level of *international inequality*. Whereas both intercountry and international inequality only require information on QOL at the national level (country averages), another concept, *global inequality*, additionally demands information on the distribution of QOL within countries. Describing the distribution across all world citizens, global inequality is the summation of its two components, between-country inequality and within-country inequality (Firebaugh, 2003). Please note that the terms we have introduced here – intercountry, international, and global inequality – are often used interchangeably.

In substantive terms, the key questions are (1) whether QOL inequality in the international arena is smaller or larger than income inequality and (2) whether QOL inequality exhibits the same or a different trend over time than income inequality does. In an early piece using Morris' ► [Physical Quality of Life Index](#) (PQLI) from the 1950s to the 1970s, intercountry QOL inequality was found to be much smaller than the respective income inequality (Ram, 1980). Moreover, the two exhibited diverging trends: Whereas income inequality slightly increased in the period studied, PQLI inequality decreased substantially, in particular during the 1950s. The decline was so dramatic that cross-country inequality "almost

disappear[ed]" (Ram, 1980: 198) by the 1970s. This finding led Rati Ram to question the usefulness of PQLI as a comparative indicator of well-being.

Research based on other QOL measures lends support to some of Ram's findings while qualifying others. For example, health inequalities decreased significantly after WW2, so that incorporating gains in longevity into the income measure changes drastically the evolution of QOL inequality over time: "Throughout the post-World War II period, health contributed to reduce significantly welfare inequality across countries" (Becker & Soares, 2005: 277). And when QOL is measured with the help of the ► [Human Development Index](#), countries clearly converged between 1980 and 2010 (Decanq, 2011). When looking at the three components of the HDI separately, educational inequality between countries declined dramatically; a decrease was also found for health, although slowed down as an effect of the HIV/AIDS crisis in sub-Saharan Africa. For a shorter time span (1992–2004), other researchers even found an increase in international inequality in life expectancy (McGillivray & Markova, 2010). Mark McGillivray and Nora Markova also question the idea that the world is less equal in terms of QOL than in terms of income; according to their (population-weighted) findings, achievement in education are most unequal internationally, followed by health and then income. In conclusion, international and global accounts of QOL inequality deserve much more attention since they generate knowledge relevant for both the academic and the public debate about globalization and the emerging new world system.

Cross-References

- [Capabilities](#)
- [Educational Inequality](#)
- [Egalitarianism](#)
- [Gender Inequalities](#)
- [Income Distribution](#)
- [Inequality-Adjusted Happiness](#)

- ▶ Poverty
- ▶ Quality of Life (QOL)
- ▶ Subjective Well-being (SWB)

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Inequality of Educational Opportunities

- ▶ Educational Inequality

Inequality of Mortality

- ▶ Length of Life Inequality

Inequality, Quality of Life

- ▶ Inequality in Quality of Life

Inequality-Adjusted Happiness

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Definition

How well a nation combines a high level of happiness with an equitable distribution of happiness.

Description

Aim

According to the utilitarian creed, the quality of a society should be judged using the degree of happiness of its members, the best society being the one that provides the greatest happiness for the greatest number. Following the egalitarian principle, the quality of a society should be judged by the disparity in happiness among citizens, a society being better if differences in happiness are smaller. Performance on these

standards can be measured using cross-national surveys, where degree of happiness is measured using the mean response to a question about happiness and disparity is expressed as the standard deviation of responses.

These measures are married together in an index called the “inequality-adjusted happiness” (IAH) that gives equal weight to either criterion. It is a linear combination of the mean happiness value and the standard deviation in a nation, and it is expressed as a number on a 0–100 scale.

Computation

This index is expressed in the following formula: $IAH = 8.28(m - s) + 17.2$, where m is the mean response to a question on happiness in a nation and s is the sample standard deviation of the responses, happiness being measured using a 0–10 scale ranging from most unhappy (0) to most happy (10). On this index a score of 100 means that everybody is completely happy; e.g., all respondents in the sample rated their happiness 10 on a scale of 0 to 10 (Veenhoven & Kalmijn, 2005; Kalmijn & Veenhoven, 2013).

Difference Across Nations

The IAH differs widely across nations (Veenhoven, 2012). Some illustrative findings are presented in the table below (Table 1).

Inequality-Adjusted Happiness,

Table 1 Examples of inequality-adjusted happiness (IAH) in nations (2000–2009)

Nation	Happiness		Inequality-adjusted happiness	
	Average	Standard deviation	IAH	IAH(Previously)
Denmark	8.03	1.53	71	(75)
Iceland	7.87	1.66	69	(73)
Switzerland	7.74	1.58	68	(72)
Finland	7.61	1.56	67	(71)
The Netherlands	7.33	1.37	67	(69)
Japan	6.35	1.91	54	(57)
France	6.45	2.11	53	(58)
Indonesia	6.16	2.05	51	(55)
Poland	6.26	2.29	50	(55)
China	6.14	2.45	48	(53)
Macedonia	4.68	2.57	35	(39)
Bulgaria	4.46	2.41	34	(37)
Mali	4.73	2.77	33	(38)
Zimbabwe	3.23	2.28	25	(26)
Tanzania	3.03	2.76	19	(22)

Trend over Time

Average happiness has gone up in most nations during the last 30 years, while inequality of happiness has decreased. Consequently, the scores on the index of inequality-adjusted happiness have risen in most nations (Veenhoven, 2012).

Cross-References

- ▶ [Happiness](#)
- ▶ [Inequality](#)

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Inequality-Adjusted Human Development Index

- ▶ [Human Development Inequality](#)

Infant Health Outcomes

- ▶ [Infant Well-Being, Segregation, and Race](#)

Infant Toddler Quality of Life Questionnaire (ITQOL)

- ▶ [Child Health Questionnaire \(CHQ\)](#)

Infant Well-Being, Segregation, and Race

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Synonyms

[Infant health outcomes](#); [Neighborhood segregation](#); [Racial discrimination](#)

Definition

Racial Segregation

Segregation is a general concept developed to explain racial organization of neighborhoods. Segregation has been a persistent part of the residential landscape for more than a century, with much of the literature focusing on the impact segregation has for blacks. The urbanization and industrialization of the American city led to the ▶ [immigration](#) of southern blacks to northern cities. With the influx of black populations, whites began leaving the cities or limiting residential locations of blacks to specific areas within most major cities, including Chicago, Detroit, Cleveland, Philadelphia, and New York. Massey and Denton (1993) suggest that racial ▶ [segregation](#) was the key factor responsible for the transformation of the black community in 1970s. Segregation undermines the social and economic well-being of racial minorities creating deleterious environments leading to ▶ [poverty](#), joblessness, educational

failure, out of wedlock births, welfare, and ► **health disparities** for both adults and children (Massey & Denton, 1993). Researchers investigating the relationship between residential segregation and health have largely focused on two or three measures of segregation (evenness, isolation, or clustering). Although research has focused solely on two or three distinct measures of segregation, Massey and Denton (1988) identified segregation as a multidimensional construct with five dimensions. Individual dimensions are evenness, isolation, concentration, centralization, and clustering (Massey & Denton, 1988). Evenness is the proportion of a racial group that must move to have an even distribution in the population. Isolation is a concept that looks at the likelihood a race is to interact with only others of the same race. Concentration focuses on the amount of physical space occupied by a race. Centralization is a measure of the degree to which a race is centrally located within a city. The final dimension of segregation is the degree to which a race is contiguous and closely packed which is considered clustering. Although each dimension of segregation is thought to impact various racial groups and infant well-being differently, research investigating the relationship between each dimension of segregation and infant well-being is limited. Prior research may have placed an overemphasis on evenness and thereby missed key information about other dimensions. Accordingly, other dimensions of segregation have been used in an attempt to broaden the understanding of the relationship between racial segregation and infant well-being (McFarland & Smith, 2011).

Description

Theoretical Foundations of Segregation and Infant Well-Being

In the past three decades, considerable attention has been given to the persistence of segregation in the black and Hispanic communities. A majority of work on racial segregation focuses on blacks with a burgeoning literature

investigating segregation among Hispanics. Segregation is thought to create health disparities among racial minorities and has been shown to be especially detrimental to infant well-being. Here, we highlight two theoretical perspectives to help understand the relationship between race, segregation, and infant well-being. *The place stratification perspective* focuses on the inimical impact racial segregation has for minorities, while the *ethnic enclave perspective* focuses on the salubrious impact of segregation. Place stratification is generally used to describe segregation among blacks, while the ethnic enclave perspective is used to describe segregation among Hispanics.

The place stratification perspective focuses on how prejudice and discrimination prevent wider residential opportunities for racial minorities (Massey & Denton, 1993). Segregation occurs in densely populated highly urbanized areas in which there are high levels of economic deprivation. Residential neighborhoods that experience segregation are vulnerable to economic fluctuation and downturn (Massey & Fischer, 2000). As segregation increases, poverty becomes concentrated leading to withdrawal of resources and amenities. Conversely, affluence also becomes concentrated in other areas (Massey, 2009). Based on the place stratification perspective, segregation is harmful to the health of minorities due to limited access to social, economic, political, and institutional resources (Williams & Collins, 2001). For whites, increased racial segregation may create an atmosphere characterized by an abundance of social, emotional, and organizational resources that provide shelter from economic recession, social disorder, and even perhaps natural disasters (e.g., hurricane Katrina). For minorities, high levels of segregation may lead to higher levels of ► **stress** among the population and greater instances of stress-related illness. Prolonged exposure to such social pathology produces repeated activation of the bodies stress response that can lead to a host of deleterious health outcomes such as hypertension, obesity, type II diabetes, as well as increased susceptibility to illness and infection. For example, Phuong Do and colleagues (2011)

reported that neighborhood ► violence leads to blunted awakening cortisol – an indicator of potential hypothalamus-pituitary-adrenal axis dysregulation. Repeated activation of the bodies stress response tends to disrupt the system of the body responsible for slowing down the heart rate and reducing bodily tensions. These negative health responses may be particularly harmful during pregnancy. Massey (2004) theorizes that racial segregation among blacks is at least partially responsible for the stark racial disparities in health found in the USA.

The second theoretical perspective is aimed at explaining the salutary effects of segregation for ethnic minorities. This tradition suggests that living in ethnic enclaves can have a protective effect on health by providing educational and employment opportunities along with social and emotional support. The ethnic enclave perspective suggests that other elements of the social structure in enclaves compensate for economic disadvantage. Hispanic enclaves maintain high levels of social capital that offset other various types of ► community disadvantage. These enclaves have been shown to be protective for age-specific mortality and self-reported health (Kawachi & Berkman, 2000). This phenomenon is often referred to as the “Hispanic paradox” where Hispanics tend to have better health outcomes than other minority groups with similar SES (Frisbie, Forbes, & Hummer, 1998). While blacks are segregated involuntarily by a variety of mechanisms as the place stratification perspective suggests, Hispanics may be more likely to opt to live in segregated areas indicative of an ethnic community rather than compounded disadvantage (Lee & Ferraro, 2007). Wilson and Portes (1980) first described the process in which immigrants adapted to neighborhoods in the USA. They suggest that special organization of ethnic neighborhoods creates a concentration of immigrants who develop a distinct economic sector providing employment, social capital, and education among members of their ethnic group. Future generations born into the enclave continue to benefit from the economic sector that has developed. This consolidation of resources

creates a buffer between members of the ethnic group (whether first-, second-, third-generation, etc.) and nonmembers such that those within the enclave are protected from economic downturns. This translates to environments and resources that create a protection against stress-related disease and other illnesses. These resources can also foster beneficial health behaviors and discourage negative ones such as smoking and drinking. Pregnant and parenting mothers may receive increased social support from family, extended family, and the community.

Empirical Findings: Race, Infant Well-Being, and Dimensions of Segregation

Racial disparities in infant well-being are pronounced across the USA. McFarland and Smith found that in 2000, the low birth weight rate for whites was 67.3 births per 1,000 births in the population, while blacks had a rate of 131.7. Hispanics experienced lower rates of low birth weight to whites with 41.1 low birth weight babies per 1,000 births. Infant mortality rates were also disparate with a rate of 6.0 per 1,000 births for whites, 15.6 per 1,000 births for blacks, and 6.7 per 1,000 births for Hispanics. These rates are consistent with both the place stratification and ethnic enclave perspectives with whites and Hispanics fairing better than blacks.

The impact of residential segregation on infant well-being for whites is inconsistent. Some research found that residential segregation was negatively associated with infant mortality for whites providing support for the place stratification perspective (Acevedo-Garcia et al., 2003; Collins & Williams, 1999); McFarland and Smith (2011), however, found that racial segregation, mainly dissimilarity, between whites and blacks was positively associated with infant mortality for whites but was unrelated to low birth weight. Indeed, among whites, a one unit increase in dissimilarity was associated with a 65 % increase in the odds ratio for infant mortality. These findings contradict the place stratification perspective which would suggest that whites would witness health benefits from the concentration of affluence present in segregated areas.

The evidence generally shows that residential segregation among blacks is associated with poor health outcomes. Bell, Zimmerman, Almgren, Mayer, and Huebner (2006) found that isolation was positively associated with low birth weight, premature births, and higher rates of fetal growth restrictions among blacks in metropolitan areas. They also found, however, clustering to be related to increased birth weight and decreased preterm births. This suggests that the ethnic enclave perspective may also operate for blacks. Other segregation measures have also been shown to influence infant well-being among blacks, including a cumulative multidimensional measure of segregation exposure (McFarland & Smith, 2011). Black segregation within MSAs was also found to share a positive relationship with infant mortality (Laveist, 1993; Polednak, 1996; McFarland & Smith, 2011). These findings provide support for the place stratification perspective suggesting that concentration of poverty and lack of resources is associated with pernicious health outcomes for black infants, generally.

The impact of residential segregation on health is more complicated for Hispanics than for blacks. McFarland and Smith (2011) found both a detrimental and protective effect of segregation, such that overall segregation exposure was positively related to low birth weight, but individual dimensions of segregation (isolation and concentration) were negatively associated with infant mortality. Cumulative segregation for Hispanics was associated with increased rates of low birth weight. A unit increase in isolation was associated with a 313 % increase in the odds ratio of having a low birth weight baby for Hispanics. Alternately, they found that segregation was negatively associated with infant mortality such that a one unit increase in isolation among Hispanics was associated with a 37 % decrease in the odds ratio for infant mortality. McFarland and Smith's findings suggest that both the place stratification and ethnic enclave perspectives are plausible as partial explanations for racial differences in low birth weight and infant mortality among Hispanics.

Summary

The impact of racial segregation on infant well-being does not share a clear and consistent relationship across measures of segregation or racial groups. Although the place stratification perspective suggests that whites would experience health benefits from racial segregation, the findings suggested that evenness (as measured by the dissimilarity index) was detrimental to infant mortality. Other dimensions of segregation did not play a large role in the health outcomes of white infants. Racial segregation was detrimental to the health of black infants such that higher levels of segregation are associated with higher levels of low birth weight babies and higher infant mortality rates. The relationship between segregation and infant health for Hispanic infants was not straightforward. Although segregation was associated with higher rates of low birth weight babies among Hispanics, segregation also had a protective effect on infant mortality (McFarland & Smith, 2011). One potential explanation for this counterintuitive finding is that the mechanisms connecting isolation to the in utero environment may differ drastically from those connecting it to infant health in the first year of life. Perhaps there are simply more social pathways connecting segregation to infant mortality than pathways connecting segregation to the in utero environment. Although numerous advancements have been made in understanding the relationship between segregation and infant well-being, many questions still remain. These include expanding the causal relationship between segregation and infant well-being by utilizing longitudinal designs, exploring nonlinear effects of segregation, and investigating the potential for differential impacts among different Hispanic groups (Mexican, Puerto Rican, Cuban, etc.).

Cross-References

- [Low Birth Weight Babies](#)

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Infatuation

► Love

Inference, Statistical

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Definition

A probabilistic procedure for inferring quantitative features of a population based on the observed characteristics of a sample.

Description

Statistical inference involves drawing conclusions about the unknown characteristics of a population using the observed characteristics of a sample. Under certain assumptions, the random variation to which a sample is subject can be modeled using probability theory. This motivates the techniques used in classical or “frequentist” statistical inference. Key types of statistical inference are point estimation, interval estimation, and hypothesis testing. For this discussion, a simple example will be used to illustrate the fundamental concepts for these three inferential types.

Suppose one wishes to know the proportion of adults in a particular country diagnosed with diabetes mellitus (DM). Due to the cost and time involved with surveying the entire population for DM status, a subset of the population would be

selected to estimate the population proportion. Of course, it is understood that this estimate will probably not coincide with the true value of the proportion, and a different sample would likely produce an alternative estimate. However, if random sampling has been used, our sample is assumed to be *representative* of the population, such that statistical models can be used to describe the expected variation in characteristics inferred from a sample (Azzalini, 1996).

Let the parameter θ denote the true but unknown population proportion of adults diagnosed with DM. To estimate θ , we refer to our random sample of n adults, of which y are found to have the diagnosis of interest. The observed value of y is considered as a single realization of the random variable Y , which can theoretically take any integer value between 0 and n . Given that we have observed only a single realization of y , we may wonder what this observed value might have been in a different random sample of the same size. Extending this scenario, imagine that we repeatedly draw different random samples from the same population, each time recording the value of y (the number of adults diagnosed with DM). We could then construct a probability distribution showing the observed frequencies of different values of y in samples of constant size n . The most commonly observed values are likely to be those close to the true population value ($n\theta$), while values further away will be less frequent. This theoretical probability distribution is referred to as the *sampling distribution* of Y . In practice, the sampling distribution is not obtained via repeated sampling but derived using statistical theory based on the observed data from one's sample (Trosset, 2009).

Returning to our example, the theoretical sampling distribution of Y is fundamental for answering the following questions, corresponding with the three key types of inference introduced above:

1. How can we use our observed values of y and n to produce a satisfactory single estimate of θ ? [Point estimation]
2. Knowing that our point estimate of θ is unlikely to coincide with the true value, how can we use y and n to estimate an interval of

values expected to contain the true value? [Interval estimation]

3. Do our observed data provide sufficient evidence that θ in our studied country is different from the value in another country with similar health-care standards? [Hypothesis testing]

Principal concepts for each question are discussed below.

1. Point Estimation

From the first question originates a category of inference called point estimation. A rule for calculating a parameter estimate using observed data is called an *estimator* (Casella & Berger, 2001). For example, an intuitive point estimator for our parameter θ is the observed sample proportion or y/n . Although various mathematical functions can serve as estimators, some yield better estimates than others. In the context of point estimation, a number of quantities may be defined:

1. *Error*. An estimate's error is the distance between the estimate and the population parameter. Error is a property of a single estimate:

$$\varepsilon = |\hat{\theta} - \theta| \text{ where } \hat{\theta} \text{ is the sample estimate of } \theta \text{ (Wackerly et al., 2008).}$$

2. *Bias*. Bias is a property of the estimator; it represents the difference between the expected value (mean of the sampling distribution) of the random variable $\hat{\theta}$ (where $E[\hat{\theta}] = E[Y]/n$) and the true parameter value θ :

$$B(\hat{\theta}) = E(\hat{\theta}) - \theta$$

An estimator is considered *unbiased* if $B(\hat{\theta}) = 0$ (Lehmann & Casella, 1998). This is often considered a desirable property of an estimator.

3. *Sampling Deviation*. For a single sample estimate $\hat{\theta}$, the sampling deviation is the distance of the estimate from the mean of the estimator's sampling distribution:

$$d = \hat{\theta} - E(\hat{\theta})$$

If an estimator is unbiased, that is, $E(\hat{\theta}) = \theta$, the sampling deviation equals the error.

4. *Variance.* The variance of an estimator is the average or expected value of the squared sampling deviations (Wackerly et al., 2008):

$$\text{Var}(\hat{\theta}) = E\left[\left(\hat{\theta} - E(\hat{\theta})\right)^2\right]$$

The variance represents the average of the squared difference between individual estimates and the mean of the estimator's sampling distribution.

5. *Standard Error.* The standard error of an estimator is the standard deviation of the estimator's sampling distribution. It is simply the square root of the variance:

$$\text{SE}(\hat{\theta}) = \sqrt{\text{Var}(\hat{\theta})}$$

Now let us return to our example and the intuitive point estimator for θ , the sample proportion y/n . This estimator demonstrates two desirable properties:

- (a) The estimator is unbiased; that is, with repeated sampling, the expected (average) value of the estimate is the true parameter value θ . For our example, this result can be shown by considering y as a realization of the random variable Y , which has a binomial distribution with parameters n and θ : $Y \sim \text{Bin}(n, \theta)$ (Rice, 1994). The expected value of the estimate $\hat{\theta}$ is thus

$$E[\hat{\theta}] = E[Y/n] = E[Y]/n = n\theta/n = \theta.$$

This demonstrates a lack of systematic bias of our estimator in estimating θ .

- (b) As the sample size n approaches infinity, the estimate converges in probability to the true parameter value θ ; that is, the estimator is *consistent* (Rice, 1994). This property is equivalent to stating that

the variance of our estimate $\hat{\theta}$ approaches 0 as the sample size increases. Based on the variance of a binomial random variable, this result can also be shown algebraically:

$$\text{Var}[\hat{\theta}] = \text{Var}[Y/n] = \text{Var}[Y]/n^2 = \theta(1-\theta)/n$$

This variance clearly goes to 0 as $n \rightarrow \infty$.

Other unbiased, consistent point estimators that can also be intuitively derived include estimators for a sample mean, the difference between two sample means, and the difference between two sample proportions.

2. Interval Estimation

A point estimate of a parameter, while providing a conclusion that is intuitively consistent with the observed data, gives no information about the accuracy of this conclusion. Having used a desirable estimator to produce an estimate $\hat{\theta}$ for θ , one may naturally wonder about the reliability of $\hat{\theta}$ or the magnitude of the estimation error ($\hat{\theta} - \theta$). Although the size of the error cannot be known, the reliability of a point estimate can be expressed by also estimating a surrounding interval of "plausible" values. In the frequentist framework, such an interval is denoted a confidence interval and is associated with a probability $(1-\alpha)$ of containing the true parameter value; this is expressed as a $(1-\alpha)\%$ confidence interval, where α represents the prespecified type I error rate (see hypothesis testing below). This notation has a repeated sampling interpretation; consider that the confidence interval estimated using the observed sample either does or does not contain the true parameter value. If the confidence interval was estimated repeatedly in different random samples of the same size, each confidence interval would also either contain or not contain the true value, but the proportion of intervals that contained θ would be at least $(1-\alpha)$. This property is derived from the estimator's sampling distribution using both the estimator's expected (mean) value and its standard error.

For our example, we have used the point estimator $\hat{\theta} = y/n$. This intuitive estimator has a standard error that is simply the standard deviation of the binomial proportion divided by the square root of the sample size:

$$\text{SE}(\hat{\theta}) = \sqrt{(\theta^*(1 - \theta))/n}$$

In samples of sufficient size, estimators such as our sample proportion have a sampling distribution that is approximately normal as a result of the Central Limit Theorem (Wackerly et al., 2008). This useful property allows the upper and lower endpoints of a $(1-\alpha)\%$ confidence interval to be estimated by $\hat{\theta} \pm k^*\text{SE}$ where k is the critical value of a standard normal variable cutting off an area of $\alpha/2$ in the upper tail.

3. Hypothesis Testing

An extension of interval estimation, hypothesis testing is used to make a binary decision about whether or not one's estimate $\hat{\theta}$ is consistent with a specified reference value θ_0 . Returning to our example, let θ_0 be the known population proportion of adults with DM in a different country of interest. Having estimated $\hat{\theta}$ for our country, we need to decide whether $\hat{\theta}$ is consistent with θ_0 , or whether the prevalence of DM seems to differ between the two countries.

To answer this question, we may readily proceed by calculating the difference between $\hat{\theta}$ and θ_0 as $(\hat{\theta} - \theta_0)$. But how do we use this quantity to answer our question? In the frequentist framework, the key is to quantify the probability of observing a difference this great or greater when no real difference exists, that is, under the “null hypothesis” H_0 . If the determined probability (p-value) is sufficiently small, we may conclude that our data are consistent with a reality where θ and θ_0 are truly different. In statistical terms, we would decide to reject the hypothesis of “no difference between the proportions θ and θ_0 ,” in favor of the alternative hypothesis that a difference truly exists.

Note that there are only two possible outcomes for the decision: rejection of H_0 or not, with this decision being made on the basis of a probability called the p-value. This decision is actually based on a rule that compares the p-value with the prespecified significance level α ; if p-value $\leq \alpha$, we reject the null hypothesis in favor of the alternative; if p-value $> \alpha$, the null hypothesis is not rejected. The quantity α is the significance level of the test and is also the expected type I error rate or the probability of falsely rejecting the null hypothesis when it is in fact true (Lehmann & Casella, 1998).

To compute the p-value for our example, we calculate a test statistic (z) by dividing $(\hat{\theta} - \theta_0)$ by its standard error $\text{SE}(\hat{\theta})$ as above. Under the null hypothesis, this z statistic follows a standard normal distribution by the Central Limit Theorem, and hence, the (two-sided) p-value is twice the area under the standard normal distribution to the right of $|z|$ (due to symmetry). We then compare our p-value with the prespecified significance level α . If p-value $\leq \alpha$, the null hypothesis is rejected, and we conclude that the proportion of adults affected with DM in our country is different from that in the alternative, specified country. If p-value $< \alpha$, we do not reject the null hypothesis, concluding that we have insufficient evidence that the two proportions are different. One may also conduct a one-sided hypothesis, in which case the sign of $(\hat{\theta} - \theta_0)$ is prespecified and the p-value is computed only for one tail (Clayton & Hills, 2008).

Summary

Key types of statistical inference have been discussed with reference to a simple example regarding a population proportion. However, statistical inference can be performed for diverse parameters including means, differences, medians, maximums, and parameters representing the association between two variables, for example, regression parameters.

Inference in the context of this simple example was illustrated using intuitive estimation techniques based on expected values and variances of multivariate probability distributions. However, statistical inference is typically conducted using more formal methods such as maximum likelihood estimation, Bayes estimators, method of moments estimators, least squared error estimators, best linear unbiased estimators (BLUE), and Markov Chain Monte Carlo (MCMC) estimators (Casella & Berger, 2001). These approaches can be used for statistical inference in a variety of complex situations.

Cross-References

- ▶ [Bias, Statistical](#)
- ▶ [Estimator](#)
- ▶ [Random Variable](#)
- ▶ [Sampling Error](#)
- ▶ [Standard Errors](#)

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Infidelity

- ▶ [Extradyadic Relations](#)

Infirmitiy and Health

- ▶ [Disability and Health](#)

Inflammatory Arthritis, EQ-5D, and SF-6D

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Synonyms

[Arthritis](#); [Rheumatoid arthritis](#)

Definition

The EuroQol-5D (EQ-5D) index and Short-Form-6D (SF-6D) are generic preference-based instruments. The EQ-5D index is based on the EQ-5D self-report questionnaire, and the SF-6D can be estimated from the self-report

▶ [Short-Form 36 \(SF-36\)](#) or ▶ [Short-Form 12 \(SF-12\)](#) Health Surveys. Preference-based instruments are self-administered health status questionnaires which can be linked to pre-collected societal utility estimates which have been derived using choice-based methods such as the ▶ [time trade-off](#) or standard gamble.

Inflammatory arthritis is a condition characterized by the inflammation of two or more joints. People with these symptoms may satisfy criteria for rheumatoid arthritis (RA), psoriatic arthritis (PsA), or connective tissue disorder; however, the remainder will be classified as having undifferentiated inflammatory polyarthritis (IP). Approximately 70 % of those with IP will go on to have chronic RA. RA is a chronic inflammatory autoimmune disease characterized by inflammation, pain, loss of joint function, and damage to the joints.

Description

The EQ-5D index and SF-6D have become increasingly frequently collected and important outcomes as the role of economic evaluation of healthcare interventions expands. Economic evaluation seeks to inform decisions faced by healthcare systems and providers regarding which of an ever increasing number of different healthcare interventions to spend their finite resources on. Economic evaluation aims to identify cost-effective interventions, but as these interventions may be used across various different therapeutic areas, standard metrics such quality-adjusted life years (QALYs) are often used to quantify the benefits. QALYs are a metric which combine the time spent in a health state with the quality of life associated with that health state (based on the utility estimate). These utility estimates are often used in the calculation of QALYs. Economic evaluations based on the QALY, known as cost-utility analyses, have been recommended by decision-making organizations in a number of countries, such as the National Institute for Health and Clinical Excellence (NICE) in the UK. The EQ-5D and SF-6D have UK population utility estimates available, although the former also has a range of population estimates available from countries including the USA, Denmark, Spain, and Japan.

The EQ-5D and SF-6D are two of a number of available generic preference-based instruments which may be used to estimate QALYs. The instrument used for a particular therapeutic area must be validated for that setting. There is currently evidence supporting the validity of at least four different generic preference-based instruments in the setting of rheumatoid arthritis, the EQ-5D, the SF-6D, and the Health Utilities Index Mark 2 (HUI2) and 3 (HUI3), although there is no consensus on which measure is best to use (Bansback et al., 2008). These instruments collect information on different aspects of health and quality of life and use different methods to estimate societal utility values (e.g., time trade-off and standard gamble); therefore, it may be expected that estimates of

cost-effectiveness may vary for the same treatment depending on the instrument used.

This concern has been explored empirically using modeling approaches which estimated QALYs using different instruments. Brennan et al. compared the use of estimated EQ-5D-derived QALYs with SF-6D-derived QALYs when estimating the cost-effectiveness of biologic treatments for RA patients, finding that the incremental QALYs associated with treatment were halved when the utility values were estimated using the SF-6D. This had the effect of doubling the cost per QALY gained when using the SF-6D as opposed to the EQ-5D (Brennan et al., 2007). Similarly, Marra et al. used effectiveness data, the Health Assessment Questionnaire, taken from a randomized controlled trial of treatment with a biologic therapy (infliximab) alongside methotrexate compared with methotrexate alone and mapped this to the utility estimates from four preference-based instruments using a regression approach. They then used these estimates to model the expected cost-effectiveness of the treatment as assessed using the four different measures (Marra et al., 2007). The resulting additional QALY gains associated with treatment were 0.89 using the SF-6D, 1.17 using the HUI2, 1.35 using the EQ-5D, and 1.95 when estimated using the HUI3. This resulted in a cost per QALY gain as expressed in Canadian dollars of \$69,826 when estimated using the SF-6D, compared with \$46,322 with the EQ-5D and \$32,018 using the HUI3 for the same treatment. This work emphasizes the variation in estimates of cost-effectiveness which can be produced dependent on which instrument is used; a twofold difference between the SF-6D and HUI3 was observed in this case (Marra et al., 2007). Considered in the context of a societal level of willingness to pay, the choice of instrument rather than the effectiveness of a treatment may in fact be driving the decision of whether an intervention is estimated to be cost-effective or not. In both studies, the estimated incremental cost per QALY would fall below a threshold of societal willingness to pay relevant to the study setting if estimated

using the EQ-5D, but not if estimated using the SF-6D.

Around the same time as the above study by Marra, a body of work was conducted to explore the relative ► **responsiveness to change** of the various available generic preference-based measures with evidence supporting their validity in the setting of inflammatory arthritis (Harrison et al., 2008; 2009b). Studies of responsiveness are based on standardized ratios of signal to noise, for example, the mean change in an outcome measure divided by its baseline standard deviation, to allow comparisons to be made across measures with different psychometric properties. A review of the available evidence suggested that where patients health was worsening, the EQ-5D appeared to consistently be the most responsive measure (compared with combinations of the HUI2, HUI3, and SF-6D) (Harrison et al., 2008). Where patient's health was improving, the picture was less clear – there was evidence suggesting that each of the measures may be the most responsive dependent on the setting and stage of disease; for example, the high floor (worst possible health state) and descriptions of the health states in the SF-6D suggest that this measure may be more sensitive in more mild health states (Harrison et al., 2008).

The comparative responsiveness to change of the EQ-5D and SF-6D in inflammatory arthritis was tested in a UK study of four different datasets covering a spectrum of disease severity which ranged from patients from a randomized controlled trial with very early arthritis (less than 11 weeks duration) to those with severe RA eligible to be treated (or controls for those treated) with biological therapies (Harrison et al., 2009b). This study used a total of 999 patients: 182 from the trial in very early arthritis with change assessed over a 12-month period, 406 patients with long-standing arthritis (mean disease duration was 12 years) assessed annually over a 3-year period, 223 patients with severe RA commencing biologic therapy assessed over a 6-month period, and a control group of 188 patients with RA severe enough to be eligible for biologic

therapy but with some contraindication for biologic therapy and therefore treated with nonbiologic disease-modifying antirheumatic drugs (DMARDs). Patients with long-standing disease self-reporting change over the first 12 months of follow-up were also subdivided into an improving ($n = 62$) or deteriorating ($n = 81$) group. This gave a total of six groups which differed in expected directions of change, with three groups expected to improve (the 182 very early arthritis patients, the 62 self-reporting improvers, and the 223 commencing biologic therapy) and three expected to experience progression, or worsening, of disease (the overall group of 406 patients with long-standing disease, the 81 self-reporting worsening of health, and the 188 with severe disease but unable to receive biologic therapy). Responsiveness to change was assessed using the effect size (ES) (defined as the mean change between baseline and follow-up divided by the standard deviation of the group mean at baseline) and the standardized response mean (SRM) (defined as the mean change between baseline and follow-up divided by the standard deviation of this change). A ratio of responsiveness (ES and SRM) for each measure was calculated by dividing the larger of the ES or SRM for the EQ-5D or SF-6D by the smaller effect size. This study found that the comparative responsiveness of the EQ-5D and SF-6D varied according to the direction of change; the EQ-5D was more responsive to deterioration while the SF-6D was more responsive to improvement. Furthermore, the SF-6D did not respond in patients with severe RA who experienced deterioration, suggesting the use of this instrument in this setting may be inappropriate.

Despite measures of responsiveness suggesting that the SF-6D was the more responsive to improvement, the EQ-5D did respond to change in either direction and consistently provided larger mean change estimates, although with greater variation. This represents a disconnect between studies looking specifically at responsiveness to change and those actually using preference-based measures in economic evaluation, the latter using mean

change with uncertainty, not responsiveness, to assess the effectiveness of an intervention. The mean change for all groups in the responsiveness study described above was larger when measured using the EQ-5D than the SF-6D: (a) improvers, 182 very early arthritis patients (EQ-5D 0.20 vs. SF-6D 0.13), 62 self-reporting improvers (EQ-5D 0.06 vs. SF-6D 0.03), and 223 commencing biologic therapy (EQ-5D 0.15 vs. SF-6D 0.08), and (b) deteriorators, 406 patients with long-standing disease (EQ-5D -0.05 vs. SF-6D -0.02), 81 self-reporting worsening (EQ-5D -0.13 vs. SF-6D -0.04), and 188 with severe disease but unable to receive biologic therapy (EQ-5D -0.07 vs. SF-6D -0.01) (Harrison et al., 2009b). Therefore, these findings support those of Marra and colleagues (Marra et al., 2007) that the choice of instrument could have implications for decision-making on the basis of cost-effectiveness analysis and suggest that the EQ-5D may provide more optimistic estimates of the cost-effectiveness of treatment. Studies published since these papers have continued to document the divergence between estimates of change over time, which may translate to differences in subsequent QALY calculations, and decisions based on these evaluations. Adams et al. report mean 1-year changes in EQ-5D and SF-6D scores in patients receiving biological treatments in Ireland (EQ-5D: 0.22, SF-6D: 0.08) (Adams et al., 2010) consistent with those reported over 6 months by Harrison et al. (EQ-5D: 0.15, SF-6D: 0.08) (Harrison et al., 2009b). Similarly, Lillegravent, Kristiansen and Kvien (2010) and Salaffi, Carotti, Ciapetti, Gasparini and Grassi (2011) report discrepancies in the utility scores derived using the EQ-5D and SF-6D which may affect the apparent cost-effectiveness of treatments, with the EQ-5D expected to provide estimates which appear more cost-effective than those derived using the SF-6D, consistent with early findings (Brennan et al., 2007; Marra et al., 2007).

The increasing use of preference-based measures such as the EQ-5D and SF-6D in inflammatory arthritis has highlighted some interesting methodological areas of further

research affecting the use of these instruments across a range of settings. Reports from a UK study of 700 patients with inflammatory arthritis that relatively high proportions of patients (9 %) reported EQ-5D profiles with values considered worse than dead (Harrison et al., 2009a) provide a useful exemplar for two key issues: the descriptive ability of preference-based instruments and the influence of the methodology supporting the valuation of health states. These findings were replicated in data from Ireland (Adams et al., 2010), where a higher proportion of patients reporting health states with worse than dead valuations (17 %) was reported.

Worse than dead valuations are emotive and suggest extremely poor health-related quality of life; so what aspects of health were inflammatory arthritis patients reporting that led to them to report these health state valuations? Patients reporting EQ-5D health profiles valued worse than the state of being dead all scored at the worst level of the pain/discomfort domain ("extreme pain/discomfort") along with at least some/moderate problems in three of the four remaining domains (Harrison et al., 2009a). Consistent with previous studies, EQ-5D was bi-modally distributed with one low distribution ranging from -0.349 to 0.364 and a higher distribution ranging from 0.516 to 1. Predictors of being in the low distribution were pain (measured by a visual analogue scale and the interference of pain on normal work (SF-36 question 8)), functional disability (measured by the Health Assessment Questionnaire), disease activity (measured by erythrocyte sedimentation rate), and feeling downhearted or low (question 9f of the SF-36) (Harrison et al., 2009a). Furthermore, within the lower distribution, bodily pain (measured by SF-36 question 7), tender joint counts (physician measured), and again feeling downhearted or low were predictive of patients with worse than dead health state valuations. Self-reported pain was consistent to an extent with scores on other measure, for example, around 80 % of these patients reported equivalent questions of the SF-36 (bodily pain (Q7) and pain interference (Q8)) at the two most severe levels (Harrison et al., 2009a).

However, few of the patients with worse than dead EQ-5D valuations would have scored at the floor of the SF-6D, despite the floor of this instrument being considerably higher than that of the EQ-5D (0.30 vs. -0.594). In addition, only around 40 % of patients with worse than dead scores reported the most severe levels for SF-36 questions covering pain (bodily and interference with normal work), nervousness, or feeling downhearted or low. There are no intermediate responses between "moderate" and "extreme/unable" for EQ-5D domains, and moves between these levels attract a large decrement in utility for each of the domains, as well as an additional reduction in utility, known as the N3 term, for the first domain scored at the most severe level. Comparison with SF-36 responses suggests that some patients may classify aspects of their health at levels in between the "moderate" and "extreme/unable" responses of the EQ-5D. At the other end of the scale, the EQ-5D has also been found to have a high ceiling effect with many respondents reporting the best possible state, suggesting a lack of descriptive ability in patients with milder disease. The ceiling effect of the EQ-5D has been detected within certain domains of the measure in inflammatory arthritis, most notably in the anxiety/depression and self-care domains, even in patients with severe disease (Harrison et al., 2009b). These findings support previous suggestions that the EQ-5D may be too crude to describe certain health states and that the addition of new levels or dimensions and better health states descriptions may improve the EQ-5D (Insinga & Fryback, 2003). A 5-level EQ-5D, termed the EQ-5D-5L, which inserts additional responses in between the three levels of the original version of the EQ-5D (re-named the EQ-5D-3L), has been developed, primarily in response to criticisms about descriptive ability in mild states leading to ceiling effects (Herdman et al., 2011). These additional levels provide intermediate responses using the terminology "slight" in between "no" and "moderate" problems for a domain and "severe" as an additional category between "moderate"

and "extreme/unable." The most extreme level of the mobility domain is also revised from "confined to bed" to "unable to walk about" which may increase the descriptive ability of that particular domain by making the most severe level less specific and restrictive; of the 700 inflammatory arthritis in a recent study using the EQ-5D-3L, no one used this response to the mobility domain (Harrison et al. 2009a).

Currently studies are underway to provide new preference-based values for the EQ-5D-5L. In the meantime, "crosswalk" scores developed in a sample in which respondents completed both the 3- and 5-level versions of the EQ-5D are available on the EuroQol website (<http://www.euroqol.org>) and have been submitted for publication. The method of valuation chosen for the new EQ-5D-5L health states has not yet been revealed. Methodology supporting the valuation of health states has key implications both in the range and severity of scores and for the subsequent analyses using these values. As mentioned previously, the range of scores for the SF-6D and EQ-5D-3L are considerably different, and within the same population of patients, the SF-6D will tend to provide a higher valuation of health (Harrison et al. 2009b). The SF-6D valuations are estimated using standard gamble (SG) whereas the EQ-5D-3L was valued using time trade-off (TTO) methodology. The SG is often considered the more theoretically valid estimator of utility as it encompasses uncertainty and risk behavior, which are both involved in many medical care decisions, but higher SG utilities may be explained by the potential risk of death in choices. This might make subjects more willing to accept substandard health rather than accept a probability of certain death, increasing the valuation of the health state in question. The SG is also cognitively demanding for respondents to complete. The TTO was designed to be less demanding than the SG, but still has a number of limitations. These included the cognitive demand which leads to a high number of inconsistent answers (which are often excluded

affecting the representativeness of values), the valuation of worse than dead responses which requires an adjustment to the task presented to the respondent, and in the case of the EQ-5D-3L TTO values, an “arbitrary” rescaling of worse than dead responses (Craig & Busschbach, 2011). A number of new methods for valuing health states for preference-based measures such as the EQ-5D are currently being explored in an attempt to overcome these limitations, for example, angular- (ARUM) and episodic random utility models (ERUM) (Craig & Busschbach, 2011) and discrete choice experiments (Bansback, Brazier, Tsuchiya, & Anis, 2012). The methods used to value health states can influence the losses and gains associated with a healthcare intervention and therefore should be evaluated carefully.

Patients in the above two studies (Harrison et al. 2009a; Adams et al. 2010) were neither directly asked whether they considered their health to be “worse than dead” nor what they considered to be a state “worse than dead.” In order to further assess the validity of “worse than dead” valuations, qualitative techniques could be used to find out firstly whether patients with a “worse than dead” EQ-5D score actually rate themselves as in a state “worse than dead” and if so, why. Secondly, more detailed descriptions of the health states of patients in EQ-5D states “worse than dead” could be rated by a sample of the general population to see if the valuation of the state was “worse than dead,” and whether it remained “worse than dead” if more information about the patient experience of the state is presented (Brazier et al. 2005; Dolan 1999a, b).

As preference-based measures such as the EQ-5D and SF-6D are increasingly used and are modified, there is a need to continue monitoring their performance in each disease setting in which they are applied. The conclusions of cost-utility analyses based on different methods of deriving and attaching preference-based values to patient-reported health states should continue to be tested in future studies.

Cross-References

- Preference-Based Measures of Health-Related Quality of Life
- Preference-Weighted Health States
- Psychometric Analysis
- Responsiveness to Change
- SF-36 Health Survey
- Short Form 12 Health Survey (SF-12)
- Time Trade-Off

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Inflammatory Bowel Disease Questionnaire (IBDQ)

► [Health-Related Quality of Life and Inflammatory Bowel Disease](#)

Inflation, Public Concern with

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Definition

Inflation is the rate of change of the ► [consumer price index](#) that reduces the purchasing power of a country's currency.

Description

Inflation and ► [unemployment](#) are perhaps the two most important economic terms in the eyes of the public (Hellerstein, 1997). There is no agreement on what constitutes an optimal inflation rate; however, the public concern with inflation generally builds up and tends to rise the higher inflation gets.

Discussion

Studies that show public concern with inflation include the work of Di Tella, MacCulloch, and Oswald (2003) who present evidence that inflation is a variable in a ► [well-being](#) function. Unlike traditional methods such as the misery index which suggests public indifference between inflation and unemployment, they quantify subjective survey responses at varying levels of inflation as an indirect measure of public concern with inflation. They find that a one percentage point increase in unemployment is associated with about twice as much decline in subjective well-being as is a similar increase in inflation.

Public concern about the erosion of living standards stems from the belief that inflation pushes up prices before it pushes up wages (Hellerstein, 1997) and that wages may take several years to adjust fully after an inflation episode. The public is also concerned that high inflation rates heighten uncertainty about the magnitude of future price increases and view inflation as an indirect tax that would only be more variable under conditions of high inflation. This public sensitivity is difficult to justify in economic terms as wages are also prices – prices for labor services. In fact wages tend to rise faster than other prices as new capital and innovation increases output per worker in the long run. However, variable inflation inconveniences the public, a price to pay in a country that pursues a high inflation monetary policy.

Rising prices compound the ► [anxiety](#) of retirees relying on savings to supplement their income. Unexpected increases in the general price level can significantly erode the value of savings over time. Institutions in some countries have inflation-indexed financial products and

social security indexed to inflation, thus limiting the adverse effects of rising prices on retirees. Unanticipated inflation redistributes income from nominal creditors to nominal debtors. Bach and Stephenson (1974) have argued that this redistribution may be between generations, as net creditors are likely to be older relative to net debtors with fixed price liabilities. Also, because the tax system does not limit taxes to only real returns, even expected inflation has the potential to lower capital accumulation, reduce ► [economic growth](#), and ultimately downgrade the standard of living.

Inflation largely from rising commodity prices following the recession in 2008 and subsequent monetary easing in some countries has brought to the fore a toxic mix of high unemployment and future inflation uncertainty. The resulting fall in aggregate demand explained by low business and consumer confidence can damage growth and the standard of living of many people.

Inflation may be a major public concern, but there are arguments for moderate inflation for two reasons. Since cuts in nominal wages are rare, some inflation may make the labor market function better and help stabilize the equilibrium real wage and unemployment. The other reason is the inflation tax that governments could safely accrue based on the relationship between inflation and economic growth (Tobin, 1972). At what level of inflation does this relationship become negative? Sarel (1996) found that below 8%, inflation does not have a significant effect on growth. He used panel data for 87 different countries that included ► [Australia](#) and Zimbabwe. In a more recent study, Khan and Senhadji (2001) estimated the inflation threshold to be 1–3 % for industrial countries and 11–12 % for ► [developing countries](#).

Though rarely, inflation can go much higher than a few percent over the course of a year. History's most famous example of hyperinflation took place in ► [Germany](#) in 1922–1923, where at its peak prices were rising about 16 % a day. A more recent case of hyperinflation is Zimbabwe in 2008–2009, where prices were rising so fast that the central bank stopped filing official inflation statistics and the country abandoned

its currency in 2009. It is now common for central banks to have explicit inflation targets as their primary objective, at least for “core” inflation, one way in which public concern with inflation can be lessened.

Cross-References

- [Anxiety](#)
- [Australia, Quality of Life](#)
- [Developing Countries](#)
- [Economic Growth](#)
- [Germany, Quality of Life](#)
- [Income Redistribution](#)
- [Unemployment](#)
- [Well-Being](#)

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Informal and Official Poverty

- [Objective and Subjective Poverty](#)

Informal Caregiving

- [Caregiving, Family](#)

Informal Economy in the Arctic

► Subsistence in the Arctic

Informal Economy, Arctic

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Definition

Arctic informal economy is a complex system of informal (outside the control of formal entities) economic relations based on the exchange of goods, services, and social relations through money or other exchange values.

Description

Informal economic activities are transactions with economic implications that are not part of the formalized economic system, which means they are:

- Not registered by any formal authority
- Involving either realized (money exchanged) or unrealized (commodity exchange, gift giving, etc.) economic component
- Usually transactions that are related to renewable resource extraction and distribution, primarily food (Rasmussen, 2010)

Consequently, the informal economy relations are situated somewhere between subsistence, i.e., hunting and fishing for own or family survival, and the formal economy where products from hunting and fishing are distributed through registered and registering authorities.

The system of informal economy in the Arctic differs in substantial ways from what in Western economic thinking is often referred to with concepts such as “black economy,” “hidden economy,” or “moonshine work.” While these concepts have negative connotations because

they are considered as being attempts to evict the social responsibilities of, for instance, taxation, the informal economic relations are playing important roles in adjusting social inequalities in a sparsely populated part of the world where limitations in accessibility, changes in the environment, and limitations in the formal economic systems are impacting the quality of life.

The Role of the System of Informal Economy

The informal economic system creates a kind of linkage between the formal and the subsistence sectors, i.e., the domestic/subsistence activities and the commercial production (Usher, 1986; Dahl, 1989). In the Arctic, as in many rural areas worldwide, the two types of activities are interwoven because parts of the population may be depending on wage work and income generated through employment or sale of products to companies inside or outside the community, while others are depending on hunting and fishing as a means of subsistence. As a consequence, the local economies are not determined by one-dimensional capital/wage earner rationalities. Instead they are defined through other economic rationalities connected to local environmental, social, and cultural conditions (Chayanov, 1966). And as a consequence, the distinctions between subsistence and cash-based economic sectors are under these constraints more or less artificial.

Local markets and informal economic relations serve in this context first of all as a redistribution channel whereby hunters and fishermen working in the subsistence sector are getting access to goods and services requiring cash. It enables the maintenance of links to the formal economy for persons otherwise outside the formal sector, and thereby providing a redistribution of formal economic opportunities. At the same time, it provides persons without opportunities to hunt and fish themselves access to local products. The informal economy and the local markets thereby serve as a “leveler” of the differences between the formal and the subsistence economies, for instance, by providing a means of adjusting economic discrepancies in families, among relatives, and in the community

(Caulfield, 1992; Duhaime, Fréchette, Robichaud, 1996; Rasmussen, 1999).

Another role of informal economies in vulnerable Arctic communities is to be a means of coping with disparities and crisis. It provides a means to adjusting abnormalities in wage work arrangements, for instance, in situations with temporary layoff of workers in the formal sector. The formal economy in the Arctic is often depending on large-scale economic activities related to mining and energy extraction. When resource extraction is halted due to world market price declines, financial crises, or emptied resources, the result may be increased unemployment and dwindling incomes. In such situations the informal economy may provide an important opportunity to generate incomes that may ease the situation.

A third role is the contribution to maintenance of local traditions in relation to food. While the formal economy enters the Arctic with a wide variety of cheap imported food products in supermarkets and shops, it seldom ensures access to local products because of low commercial value. Under these conditions, the informal economy provides availability and accessibility of local products for the communities.

The Size and Future of the Informal Economy in the Arctic

Understanding both ► resilience and variation in Arctic communities, as well as their economic perspectives, is not only to compare the formal and the subsistence sector but to also take into account the informal sector (Gromsrød & Aslaksen, 2006). There are, however, some problems connected to a fuller understanding of the informal sector. It is difficult to get access to basic data, and it is difficult to convert the basic data – usually qualitative observations related to participant observations made possible by extended field residence or by harvest and/or diet data through recall surveys – into economic categories. Through different approaches – frequency of consumption, replacement value determination, etc. – a general value of the informal economy has been estimated to be around 1.5 % of GDP in the Arctic.

In the first decade of the twenty-first century, a Survey of Living Conditions in the Arctic (SLiCA) has added substantially to our understanding of the role of both subsistence and informal economies for quality of life in the Arctic by providing details regarding individual valuation of the sector's importance in different parts of the Arctic. Due to the fact that the sector is generally recognized as being an important contributor to quality of life in the Arctic, the Arctic Council has endorsed the inclusion of a set of additions to the “minimum list” of ► social indicators (Arctic Social Indicators, 2010) that United Nations experts have proposed for statistical monitoring (UN, 1996). These unique indicators reflect the differences between the Arctic and the surrounding world needed in order to understand the consequences of changes in the Arctic. In particular the “contact with nature” domain focuses on the close relationship with the natural world and a sense of belonging to the land (and the sea). This emphasizes the fact that living in small Arctic communities means living close to nature, with communities characterized as place-based systems that feature human adaptations closely tied to local environments and nature through interacting intimately with the natural world. In this connection the informal economic system is vital.

Cross-References

- Resilience
- Social Indicators

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Informal Helpers' Well-Being

- Well-Being of Spouses of Persons with Mild Cognitive Impairment

Information

- Reading Newspaper Articles

Information Integration Theory

- Functional Measurement

Informational Technology Computational Paradigm

- Cloud Computing

Infrequency Approach to Identifying IER

- Survey Responses with Insufficient Effort

Injury Assistance

- Workers' Compensation

Inner Control

- Freedom and Quality of Life

Inner Peace

- Peace of Mind

Innovation Design

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Synonyms

Research

Definition

Innovation design is a multiform force that has to continually redefine itself and its methods. The challenge it has to face is to design all the infrastructures we use in our daily lives while respecting planet earth because this has an enormous and important economic and functional impact on the community at large.

Description

G. K. Koenig stated that “Design can be called true only when there are strong interactions between scientific discovery, technological application, good design and positive social effects.”

For many years the word innovation was associated with frantic research in the field of materials and technologies; in the key projects of many companies, it often still is.

Of course technical research is essential, but we should also reflect on the fact that in today’s world truly important novelties involve social issues and environmental problems, both of which affect consumption models, new economies, and, lastly, our needs and the world of objects.

After decades of intense debate, it is fair to say that social and environmental issues have become the engine behind ► **economic growth** and scientific and technological innovation. However, this debate does not always drive the production of new kinds of objects – different and suited to more ecocompatible and respectful lifestyles – and still allow us to meet our current needs.

We need to rethink several principles of innovation and “good design” such as functionality, culture, production techniques, and symbolism; we need to ensure that design ethics are more tuned to quality of life and human artifacts as part of a complex and sentient ecosystem.

Trying to induce a mental shift in favor of sustainability is more interesting than emphasizing technological innovation. For a long time, many people considered the only answer to environmental issues was the concept of “reduction” associated with the ideas of collective movements such as new age. This trend, often juxtaposed against the logic of innovation, appeared to prevent growth, preferring a “return to the past” and conscious rejection of the superfluous, in other words, rejection of anything that was not strictly associated with basic needs. Interestingly enough the environmental issue had an immediate effect on our

lifestyles and boosted our focus on the planet, especially after the war when it questioned the work of individuals as well as several consolidated values, including the basic myth of technological progress often confused with the concept of innovation.

On the contrary, innovation is a key tool in our attempt to solve environmental problems and design sustainable objects, not something used exclusively by technologists, engineers, or scientists: innovation involves developing designs, production processes, quality, market distribution, and consumption; above all it involves the social, cultural, cognitive, and technological preconditions behind all this. It is the end product of social dynamics where the multiple needs of the economy and culture of a population merge with the solutions invented by research.

Believing in innovation does not mean trusting in naive ► **optimism**; it means having a rather critical attitude towards what exists, as well as an idea of how to improve the situation. Innovation is more effective when it affects how we behave each day and the objects around us; it should not be associated simply with the notion of invention. Instead, it means initiating a process of change that incorporates quality into the approach, tools, values, and goals of our actions as human beings – in the broadest possible sense of the word. This happens when we introduce elements with a novelty that is ontological (other than..., taken from...) rather than chronological (the most recent..., the last...): in other words, new elements or unusual links between existing elements, new actors, rules, and strategies which, after a reasonable period of time, are recognized as being valid and useful and, as such, accepted as ordinary.

Innovation in the world of design can involve several different disciplinary fields of design culture; to implement innovation it is important to maintain a link with the memory of the past, as well as produce knowledge as a tool to interpret change. Society needs learned design to escape what John Thackara defined as “innovation dilemma”: “In a context of growing technological and social complexity, companies

know how to do incredible things technically, but do not know how to explore changing social and cultural needs. The dilemma is that putting smart technology into a pointless product that does not meet any present or future need produces a stupid product! Designers know how to help companies avoid this dilemma. They can balance technology, culture and human agency. The future is about design with, not design for, people, making users the subject, not the object, of innovation.”

Innovation as a process and not a product, especially with sustainability in mind, has led to a review of how to classify design disciplines. Today we talk of social design, design and craft, local design, and communication design – all part of our modern concept of ► **social innovation**.

We consider products, services, or models that meet social needs and create new relationships and new systems as being socially innovative: good practices for the community capable of increasing society’s potential ability to act. Social innovation can be interpreted in many ways, but what emerges, generally speaking, is the search for new organizational models where bottom-up organization goes hand in hand with “network sociality” and where social relationships become tools to be activated in entrepreneurial activities. It is true that social innovation has changed our world: networks, for example, that provide us with new relationships and different ways in which to socialize. These networks are no longer produced only by big companies or research centers but by the work and creativity of small businesses, self-organized productive communities, and individual young people who can easily contact other individuals and work together; just think for a moment of the numerous open-source software development communities.

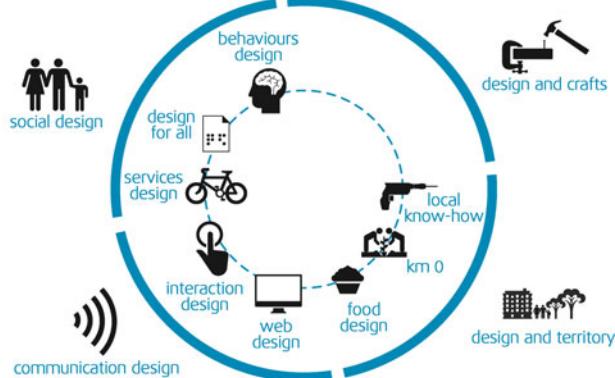
In their article for the Stanford Social Innovation Review, Phyllis, Deiglmeier, and Miller defined social innovation as a novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private

individuals. Social innovation can be a product, production process, or technology (much like innovation in general), but it can also be a principle, an idea, a piece of legislation, a social movement, an intervention, or some combination of them. NESTA defines social innovation as “innovation that is explicitly for the social and public good. It is innovation inspired by the desire to meet real social needs which can be neglected by private forms of market provision and which have often been poorly served or unresolved by services organised by the state. Social innovation can take place either inside or outside public services. It can be developed by the public, private or third sectors, or by users and communities, but cannot qualify as social unless it directly addresses social challenges.” The OECD and the LEED Programme (Local Economic and Employment Development), which includes a forum on social innovation, developed its own definition. The forum defines social innovation as “that which concerns conceptual, process or product change, organisational change or changes in finance, and can deal with new relationships with stakeholders and territories. Social innovation seeks new answers to social problems by identifying and delivering new services that improve the quality of life of individuals and communities, by identifying and implementing new labour market integration processes, new competencies, new jobs and new forms of participation, as diverse elements that each contribute to improving the position of individuals in the workforce.”

Although theorists have yet to provide a definitive definition of social design, for some scholars its main thrust is to tackle important social emergencies so as to activate tangible social change and facilitate awareness and understanding of disadvantaged and under-represented communities or marginalized and badly served users and allow them to live dignified lives from an ergonomic, psychophysical, economic, cultural, and social point of view. Design as an agent to develop artifacts, strategies, and the actions needed to produce a social impact that is not only important but helps to

Innovation Design,

Fig. 1 New approaches in design



Classification of new approaches in design



improve people's lives or activate innovative processes that benefit not only the communities for which the design was intended but also society at large, including all the operators of the design chain: designers, investors, administrations, the industry, and the market. A broader vision holds that social design should focus on society, shifting the focus from the individual to society as part of a wider scenario and reversing the priorities and values of design.

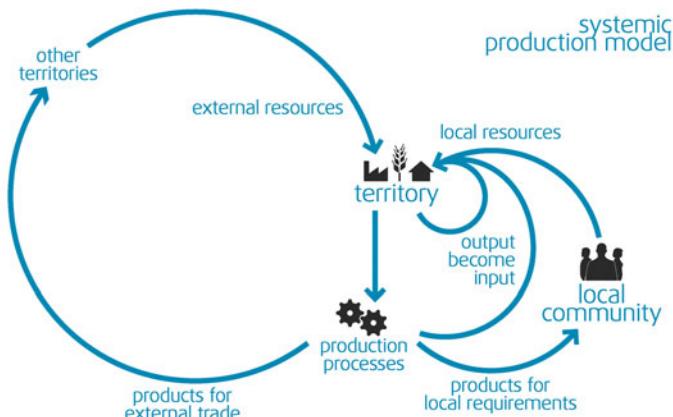
In recent years the digital revolution has brought with it new global behavior, a new economic order, and the new needs of all those who use goods and services. What is much less obvious is how things will evolve in the next few years and how communication design impacts on companies and society at large, especially when companies have to deal with a particularly dynamic and rapidly evolving scenario. It is important to be technologically, culturally, and methodologically updated given the extreme fluidity of digital communications and participated networks – crowd sourcing, cloud computing, remote manufacturing, and open licensing, to name just some of the technical tools available. In fact deciding what to do is much more important than how to do it, because technical solutions already exist and are increasing rapidly, while strategies often depend on the potential provided by those techniques.

In this scenario of cultural and productive renewal, merging design and handicrafts – design and craft – is something more than a relationship involving design discipline (the designer) and production (the artisan) in a system that includes self-production, old traditions, local know-how, the birth of small economies, and emission reduction based on a “long chain” philosophy (Fig. 1).

Design and territory, in other words to design and produce: when making choices and exploiting resources, one should bear in mind the territory in question as well as how to meet the real needs of its inhabitants.

Historically speaking, the link between design and the environment started in the 1960s. In 1964, issue n. 85 of “Edilizia Moderna” was dedicated to design. In one article the authors wrote: “Nothing is created, nothing is destroyed: however everything is kept on hold until it is transformed. We no longer have cemeteries just for men, dogs and elephants; our suburbs are cemeteries of objects. What we produce in decentralised production plants is sent for consumption, it is used first, second and third hand and then stops midway, skeletal and scraggy, waiting for its recovery to become economically convenient.” In the 1990s when we began to talk about ecodesign, the word was associated with the 3Rs – reduction, recycling/reuse, and rethink.

Innovation Design,
Fig. 2 Systemic production model



Systemic design



Although to some extent ecodesign positively influenced the environment and our behavior – because research became qualitatively and quantitatively more efficient – its effect on product design was less clear-cut; people even forgot that the rules of ecodesign are part of a good design project; just think of everything designed over the years in Italy.

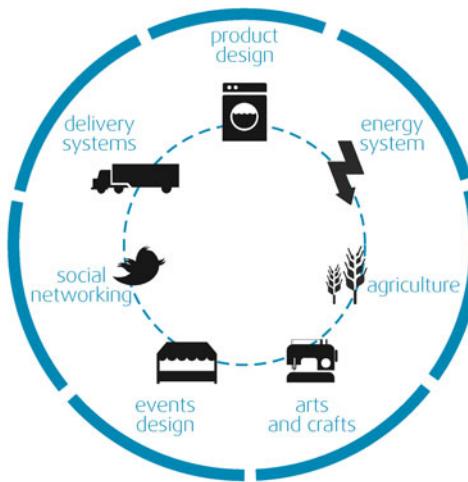
Only towards the end of the 1990s did we realize that targeted and partial technical solutions are not enough, that we need complex and future-oriented scenarios capable of rethinking design and production culture. The quantitative criteria on which so-called ecodesign essentially based the design of new products – the best possible compromise between environmental parameters, forms, and structures – are no longer enough; we need to include good quality solutions: a sense of economic growth, well-being, and sustainable development. There is no “one size fits all” in innovation, and we can achieve those goals using different, and sometimes contradictory, methods, for example, driven or design thinking (radical design) as against user-centered design; the former involves a design focused on the radical innovation of the symbolic and emotional values of products, something that redefines the meaning of objects and is characteristic of the

history of Italian design, while the latter uses ethnographic studies and careful observation of behavior and specific fields to find ad hoc answers to the evident needs of consumers. Design-driven innovation is the ability to innovate using a typical model of design based on knowledge that merges social, economic, and productive issues.

Another example is the method that involves and encourages all the players in a process to propose innovative “ideas”; generally speaking, only a quarter of all these flights of fancy are developed further and implemented.

The research group on design at the Politecnico di Torino defined and verified ► [systemic design](#) as a way to create “zero emission” innovation. It involves designing the relationships between people, activities, and territorial resources to enhance culture and identity and produce growth and well-being for individuals and communities. Awareness of one’s values, expressed through behavior, creates identity, while interaction between local communities produces *glocal* culture. Intervening in a novel manner on processes and how they relate creates what is known as a blue economy; growth occurs through self-poiesis and the end product is sustainable development (www.systemicdesign.org) (Fig. 2).

Innovation Design,
Fig. 3 Systemic design
application field



After several projects on the natural environment and the agricultural and food industry (design and food), in collaboration with Slow Food, systemic design became a methodology used in all fields of design: products (e.g., household products such as the design of low-impact appliances), energy, events, exhibitions, handicrafts, and communication (Fig. 3).

Innovation is a multiform force that has to continually redefine itself and its methods. The challenge it has to face is to design all the infrastructures we use in our daily lives while respecting planet earth because this has an enormous and important economic and functional impact on the community at large.

Cross-References

- ▶ [Business for Social Responsibility](#)
- ▶ [Connectivity \(Street Patterns and Social Networks\)](#)
- ▶ [Corporate Social Responsibility](#)
- ▶ [Design, an Overview](#)
- ▶ [Economic and Social Indicators](#)
- ▶ [Environmental Sustainability](#)
- ▶ [Social Innovation](#)
- ▶ [Systemic Design](#)

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Insecure Work

- ▶ Precarious Work

Insidedness

- ▶ Place-Related Measures

Insolation

- ▶ Solar Energy

Institute for Personality and Ability Testing Depression Scale Questionnaire

- ▶ IPAT Depression Scale

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Brief History

Psychologists Rensis Likert and ▶ Angus Campbell came to the University of Michigan in 1946 to found the Survey Research Center (SRC), an organization that would use social science research to advance the understanding of society and human behavior. They were quickly followed by former colleagues from the U.S. Department of Agriculture's Division of Program Surveys, who had developed new survey methodology and research techniques during World War II. In 1948, a group of experimental psychologists, known as the Research Center for Group Dynamics (RCGD), arrived at the university from the Massachusetts Institute of Technology, following the death of Kurt Lewin. The two groups, SRC and RCGD, combined in 1948 to form the Institute for Social Research (ISR), launching an interdisciplinary academic laboratory devoted to rigorous social science research.

Over the more than six decades that followed, ISR became the world's largest academic social science survey and research organization. Its annual budget of more than \$80 million supports the research of more than 250 scientists from 20 disciplines, including psychology, business, economics, public health, demography, statistics, and urban planning.

Within ISR are five separate but interdependent centers, each with particular focuses and capabilities: the Survey Research Center, the Research Center for Group Dynamics, the Population Studies Center, the Center for Political Studies, and the ▶ Inter-university Consortium for Political and Social Research. ISR's research scientists collaborate with colleagues to compete for public and private research funding. The core disciplinary strengths within the centers provide the intellectual foundation for the multi- and interdisciplinary research that distinguishes the institute's work.

The institute develops and tests survey methodologies, conducts experimental studies, maintains and distributes the world's largest archive of social science data, and trains and educates researchers and students from around the world in survey methodology and survey research.

In addition, ISR is known for its groundbreaking ► [quality of life](#) research, which is widely recognized as the most formative and pioneering in the field.

Activities/Major Accomplishments/ Contributions

Quality of life research that predated the coining of the term QOL began in the decade after ISR's founding. ISR researchers Gurin, Veroff, and Feld conducted the first major study dealing with QOL in 1957 for the Joint Commission on Mental Illness and Health (Campbell, Converse, & Rodgers, 1976). The study investigated attitudes toward mental health while also measuring ► [subjective well-being](#), such as ► [happiness](#), absence of worries, and feelings of self-satisfaction (Gurin, Veroff, & Feld, 1960). Although more narrowly focused than some later QOL research, it was pivotal in spurring interest in research at the level of the individual.

Gurin's work was of particular interest to ISR founder Angus Campbell, one of a growing number of researchers who believed that hard economic indicators and other objective government data were insufficient to understand the forces and impacts of societal change. Instead, he hoped to study psychological data revealed through personal evaluations to learn how Americans perceived and experienced the changing world around them. In Campbell and Converse (1972), the researchers pulled together varying ideas about how to assess Americans' ► [attitudes](#) toward the major domains of life. As Campbell and Converse (1972) wrote in the introduction, "...this book is devoted chiefly to so-called softer data of a more social-psychological sort: the attitudes, expectations, aspirations, and ► [values](#) of the American population." ISR founder and researcher Robert Kahn, who contributed a chapter titled "The ► [Meaning of Work](#): Interpretation and Proposals for Measurement," further defined the goals: "Whatever its name, the purposes of this new effort are reasonably clear: to develop a set of procedures that will monitor the quality of life in a society, record over time

the various gains and losses in that quality, and contribute to its improvement" (Campbell & Converse, 1972). And in his chapter, "Aspiration, Satisfaction, and Fulfillment," Campbell wrote: "We will be concerned with the quality of personal experience, with the frustrations, satisfactions, disappointments, and fulfillment that people feel as they live their lives in our changing society. Ultimately, the quality of life must be in the eye of the beholder, and it is there that we seek ways to evaluate it" (Campbell & Converse, 1972).

These ideas convinced the Russell Sage Foundation of the need for specific QOL research. With the financial backing of the foundation, Campbell et al. (1976) designed one of the first large-scale national studies of subjective well-being, intended to monitor the quality of American life.

Because QOL research was in its infancy, the researchers first had to grapple with definitions and methods in order to begin to establish standardized measures for the task. The researchers wanted to move beyond established economic indicators as measures of life satisfaction, looking instead at how individuals perceive their own lives. As they stated in the introduction of their seminal work (Campbell et al., 1976), "The research with which this book is concerned derives from the conviction that the relationship between objective conditions and psychological states is very imperfect and that in order to know the quality of life experience it will be necessary to go directly to the individual himself for his description of how his life feels to him. This obviously will take us into the subjective world of perceptions, expectations, feelings, and values and will involve us in excruciating problems of definition and measurement."

Campbell, Converse, and Rodgers wanted their survey results to hold up over the passage of time to serve as benchmarks of American attitudes and beliefs. Among the questions the researchers grappled with was whether quality of life was best addressed by asking respondents if they were "happy" or if they were "satisfied," two different approaches in play. The researchers chose the concept of satisfaction, for reasons

including greater clarity of definition, more relevance to the 12 domains of life they intended to investigate, and greater relevance to public policy, since satisfaction could be more easily related to public needs. By looking at 12 different domains, they hoped, for the first time, to shed light on how satisfaction within each domain contributed to an overall sense of well-being.

At the same time, ISR researchers ► Andrews and Withey were pursuing their own quality of life research focused on creating a comprehensive set of subjective ► social indicators that could be monitored over time to measure perceived well-being. Andrews and Withey developed questions looking both at the different domains of people's lives and the criteria or values by which respondents judged how they felt about those domains. Their surveys included questions designed to measure global well-being as well as well-being in a variety of domains (Andrews & Withey, 1976). While Campbell et al. focused on a satisfaction scale for measuring people's cognitive responses to each domain, Andrews and Withey developed a "delighted-terrible" scale that tried to capture both cognitive responses and affective responses.

ISR researcher Strumpel took QOL research back to economic questions, but was not confined by measures of income and wealth (Strumpel, 1976). With backing from the National Science Foundation, Strumpel gathered research looking at both economic behavior and the impact of economic changes on individuals' well-being.

A new QOL research direction emerged in the late 1970s and early 1980s. ISR researcher Marans, who had earlier done research on the impact of environment on QOL (Campbell, et al., 1976), collaborated with ISR researcher Wellman on a regional study examining the quality of life in rural and urban Northern Michigan (Marans & Wellman, 1978).

Campbell and Marans continued that focus on the interaction between environment and quality of life in the 1980 Detroit Area Study (DAS) project. Campbell and Ronald Freedman came up with the idea for the DAS in 1951 as a way for University of Michigan students to do basic social science research, from

conceptualizing a problem to doing door-to-door interviews to analyzing the data. Each year, different research faculty oversaw the work and assigned a specific area of research. In 1980, half of the questionnaire – the part overseen by Campbell and Marans – was devoted to "The Quality of Life in Detroit."

Campbell wanted to present the emerging concepts about quality of life to a general audience. His overview of ISR's quality of life research began with Gurin's 1957 study and continued through his own work of the late 1970s (Campbell, 1981). At the same time, Campbell hoped to replicate his earlier research with Converse and Rodgers in order to further develop the ideas and methodology of that early project and to track how Americans' assessments of quality of life changed over time. But due to changing funding priorities, Campbell could not get support to continue the QOL research, and his interest shifted to other areas of research.

But QOL research continued at ISR, branching into new directions. Juster, Courant, and Dow (1979) incorporated time-use studies – to understand how individuals allocate time among activities – into a broader examination of factors that lead to a sense of well-being. Juster and Stafford (1985) elaborated on that work in a collection of essays, writing: "...the ultimate constraints determining the level of individual well-being are the availability of human time and the set of factors that determine the effectiveness with which time is used."

A symposium held at the University of Michigan honoring Angus Campbell and his role in developing QOL research provided a new opportunity to survey the field. By the 1980s, academic fields pursuing QOL research included sociology, psychology, psychiatry, anthropology, economics, gerontology, and political science, and the terms used to capture quality of life had grown to include "well-being," "ill-being," "happiness," "dissatisfaction," "mental health," "adaptive functioning," "morale," "physical and mental anguish," ► pain and suffering, and ► affect balance" (Andrews, 1986). As Andrews (1986) noted, "These terms are not all comparable, but each has important links to life quality, and

nobody has yet succeeded in dividing up the conceptual territory in an elegant, uncontested way."

During the 1980s and 1990s, "well-being" emerged as a major branch of QOL research. Kahneman, Diener, and ISR researcher Schwarz (1999) sought to establish a new field of psychology to study life factors from biological to societal that influence well-being and to better understand what leads to ► **pleasure** and pain.

In the same period, Marans expanded his research within an environmental context, focusing on the impact of urban issues on QOL. Marans continued this work with the 2001 Detroit Area Study, which again examined quality of life in the Detroit region. Two decades later, Marans and Stimson (2011) used a ► **social indicators** approach that incorporated both objective and subjective measures to look at the impact of urban environments on quality of life in several world cities.

Cross-References

► [Detroit Area Studies \(DAS\)](#)

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Institute of Government Quality, Gothenburg

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Description

The Quality of Government institute was founded in 2004 by professors Sören Holmberg and Bo Rothstein at the Department of Political Science, University of Gothenburg. The institute conducts and promotes research on the causes, consequences, and nature of good governance and quality of government – that is, trustworthy, reliable, impartial, uncorrupted, and competent government institutions.

The institute's research addresses the questions of how to create and maintain high-quality government institutions and how the quality of such institutions influences public policy in a broader sense. While quality of government is the common intellectual focal point, a variety of theoretical and methodological perspectives are applied in the institute's various studies.

The institute also promotes research by offering access to cross-national comparative data on quality of government and its correlates.

While the institute's primary focus is not research on the quality of life, much of the research is highly relevant for human well-being. In a few publications, the researchers have directly approached the question on a link between quality of government and happiness or subjective well-being and found that there indeed

exists such a link (Holmberg, 2009; Rothstein, 2010; Samanni & Holmberg, 2010). In many other publications, the researchers of the institute have shown that a well-functioning government is key to promote other vital aspects of the quality of its citizens' lives. This includes publications on the connection between quality of government and health and life expectancy (Holmberg & Rothstein 2011a), quality of government and the access to safe drinking water (Holmberg & Rothstein, 2011b), and quality of government and social trust (Rothstein & Eek, 2009).

Around 20 people conduct research at the institute.

Cross-References

- ▶ [Good Governance and Happiness in Nations](#)
- ▶ [Trias Politica \(Separation of Powers\)](#)
- ▶ [World Bank Government Indicators](#)

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Institutional Confidence

- ▶ [Confidence in Institutions](#)

Institutional Elder Abuse

- ▶ [Elder Abuse and Neglect, Institutional](#)

Institutional Quality and State Budget Cuts

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Synonyms

Academic quality and budgets; Educational product degradation; Higher education quality; Product value, educational; State appropriations and institutional quality

Definition

Brinkman and Morgan (1995) postulate that inevitably reductions in state allocations for higher education will lead to what they describe as “product degradation” (p. 17). Product degradation is the reduction of institutional quality in all areas of programming including academic and social.

Description

Background in Institutional Quality Research

Public higher education has had to make some tough decisions as a result of the economic environment of state governments. Especially with the economic downturn that occurred at the end of the Bush presidency and continues today,

as states face tough funding challenges, higher education is usually seen as the first option (SELINGO, 2003). There are certain reasons for this, including the fact that education is a significant amount of any state budget and that higher education has access to additional revenue streams including student tuition and private gifts and donations. However, the reduction in allocations to higher education has still been felt by the constituents of higher education, especially students and families due to seemingly endless hikes in tuition as Milbourn and Writer (2002) state, "Facing steep budget deficits, Minnesota and other states are cutting higher education budgets and raising tuition, putting a greater burden on students" (para. 3).

What happened in Minnesota is not an isolated incident. According to a report by the College Board Advocacy and Privacy Center (Tuition and fees, 2011), "published tuition and fees at private nonprofit 4-year colleges and universities are about \$3,730 higher (in 2011 dollars) in 2011–12 than they were in 2006–07" (p. 15). Conversely, Lederman (2012) reports that 29 states allocated less money to public higher education institutions in 2011–2012 than in 2006–2007. Overall, appropriations for higher education were reduced by 7.6 %, which according to Lederman is the largest decline in higher education funding in the last 50 years.

College Affordability and State Allocations

The effects of state budget cuts do more than make college unaffordable to the population. Cuts to the education and general funds (E&G) of state institutions cause higher education institutions to cut programs and services, cancel professional development opportunities for faculty and staff, delay necessary facility renovations and construction, layoff employees, etc. Unfortunately, the perception of this process leaves many to believe that the quality of higher education suffers due to state budget cuts. This thought process is not always true as administrators have found ways to prevent funding to affect the quality of programming. According to Butler, Docheff, Moseley, and Young (2003), "Budget cuts come and go, but

the quality of physical education programs is consistently getting better."

Brinkman and Morgan (1995) postulate that inevitably reductions in state allocations for higher education will lead to what they describe as "product degradation" (p. 17). The product as defined by Brinkman and Morgan is a well-qualified graduate, successful departmental programming, or effective teaching and research. As services and programs are cut from the institutional agenda due to a lack of funding, a simultaneous reduction in quality also occurs. Capaldi (2011), also looking at the effects of budget cuts on education quality, states that the effects of budget cuts and how damaging these cuts are to the institution are never truly known as administrators do not like to talk about these things publicly. The truth is there are a number of areas that could be affected by cuts to state budget allocations. However, as recruitment of new students is a highly competitive business, most operations will deny that their programs and services were negatively impacted. This of course perpetuates the cycle of budget reductions and institutional funding recovery as state governments see institutions survive previous cuts and therefore believe future cuts will not be problematic (Phillip, Walker, & Lawrence, 2012).

America's public colleges and universities used to receive a majority of their financial support from the states. According to Tandberg (2009), "state spending on higher education as a percent of total state spending has been decreasing over the last 20 years or so, with a dramatic decline beginning in 1988" (Tandberg, 2009, p. 417). In my own research (Carter, 2009), I found that when state appropriations to higher education were cut, these cuts affected many programs and services designed to help students. Because of the severity of some budget cuts, budget restrictions trickled down to student development programs, academic services, student services, and academic programs.

The federal government is responsible for placing most of the responsibility of college affordability on the state. It used to be, beginning with the Higher Education Act of 1965, a large collaboration between the federal government

and the states, whereas the federal government would provide grants and loans for all students needing them and colleges would continue to keep tuition low and affordable (BURD, 2005). This partnership was soon dissolved as “students around the country [began] feeling the pinch of rising costs and sluggish funding for state and federal grants” (Feemster, 2005, para. 11). In addition, pressures from the federal government for states to increase funding in other areas have caused states to reallocate funding from certain areas in order to comply with federal mandates. With the national government’s requirement to increase state funding of Medicare, Medicaid, as well as other national medical programs (Footing the bill, 1996) and No Child Left Behind legislation (Rouse, 2005), state governments have had to decrease funding in other areas. As a result, higher education has become a low priority in state budget talks compared to other state expenditures particularly the number of state residents who have little or no health insurance coverage, providing for families living below the poverty line, providing for assistance programs such as Medicare and Medicaid, and providing more financial assistance to public K-12 educational institutions due to more expenditures related to No Child Left Behind (Rouse, 2005). With this happening, it has meant little money available in the state budget for higher education, and what has resulted is more cuts over the last several years (Arnone, Hebel, & Schmidt, 2003).

Maintaining Academic Quality

Despite what institutions of higher education have faced over the last decade, a study on the effects of budget cuts on higher education found that academic quality was not affected in South Carolina by budget cuts (Carter, 2009, 2012). An interesting outcome came out of this study that Pratt (2003) also discussed. According to Pratt, “Faced with significant budget cuts [the institution] attempted to deal with the pressure to teach more students with less money” (para. 14). What Pratt alludes to is the concept of doing more with less. Institutions have tasked faculty and staff with maintaining the quality of academic

programming to halt the progression of degradation. Because of reductions in state allocations, to prevent education degradation, institutions of higher education have had to adopt creative budget methods in order to balance the budget, maintain essential services, and continue to provide a quality educational product.

Conclusion

Institutions of higher education have experienced cuts in state operational budgets for several years. During the first decade of the new century, appropriations for higher education were reduced by 7.6 %, which according to Lederman (2012) is the largest decline in higher education funding in the last 50 years. The effects of state budget cuts do more than make college unaffordable to the population. Cuts to the education and general funds (E&G) of state institutions cause higher education institutions to cut programs and services, cancel professional development opportunities for faculty and staff, delay necessary facility renovations and construction, layoff employees, etc. Unfortunately, the perception of this process leaves many to believe that the quality of higher education suffers due to state budget cuts.

Cross-References

- [College Student Quality OF Life AND Social Capital](#)
- [Higher Education: Human and Social Capital Effects](#)

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Institutional Trust

- Confidence in Institutions
- Political Trust

Institutionalized Elderly

- Nursing Home Residents

Institutionalized People

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Synonyms

Incarcerated people; People with disabilities

Definition

According to Goffman (1961), a leading scholar on institutions, “[a] total institution may be defined as a place of residence and work where a large number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead an enclosed, formally administered round of life” (p. 11). Included within the category of total institutions would be the military, monasteries, convents, penal institutions, concentration camps, hospitals, psychiatric institutions, institutions for people with disabilities, nursing homes, palliative care institutions, tuberculosis and leprosy

sanatoria, group homes, and orphanages. Although this entry will broadly cover quality of life within total institutions regarding the imposed restrictions on choice, agency and autonomy, it will focus on institutions populated by people perceived as incapable of living independently, for example, people with physical, psychiatric, and intellectual disabilities or long-term health conditions. Tensions exist between medical and rights-based paradigms. Each paradigm views institutions as enhancing or restricting aspects of quality of life. As quality of life is often interpreted as “a desired quality of individuals, communities or societies” (Raphael, 2010, p. 5), determining whose desires are being prioritized and promoted through the institutionalization of an individual can create conflict between vested parties.

Description

Quality of Life in Large-Scale Institutions

The early nineteenth century saw a boom in the Western institutional system. Eugenic ideology encouraged the segregation and institutionalization of individuals perceived as “deviant” particularly individuals with ► **intellectual disabilities** and psychiatric disorders (Braddock & Parish, 2001). As disability and illness have historically been situated in the private/family sphere, institutions also served to alleviate the responsibilities from under-resourced families (Radford & Park, 1993). Within the expanding institutional system, horrific human rights abuses were condoned. Institutionalized women with intellectual disabilities and psychiatric conditions were often subjected to compulsory sterilization in attempts to curb “immoral” behavior as well as to prevent the reproduction of potentially “deficient” offspring (Braddock & Parish, 2001). Psychosurgery, electroshock therapies, and forced medication also occurred within institutions. Reports of physical, emotional, and sexual abuse were rampant (Hogeveen, 2009) as were the proliferation of unethical and unauthorized medical experiments (Klein, 2007; Rothman, 1982).

Providing Care Versus Quality of Life

Two conceptual models integral to the quality of life of institutionalized peoples are the medical model and the human rights model. The medical model conceptualizes impairment, disability, and incapacity as an individual deficit that medicine and rehabilitation can work to remedy. Within the medical paradigm, rehabilitative and care institutions serve to promote health and functionality at the risk of prioritizing individual competence and ability over social and environmental factors. The human rights model, a long established framework for measuring social justice, is currently being applied to the area of disability. It challenges historical conceptualizations of disability and perceived inability by addressing issues of inequity through the social, economic, and political reform. Within the human rights paradigm, the quality of life of institutionalized peoples is looked at through a critical lens, arguing that improving individual competence does not outweigh the underlying principle of ensuring that people’s human rights and autonomy are respected (Rioux & Valentine, 2006).

Choice and Autonomy of Institutionalized People

Despite variation of treatment towards institutionalized residents, one variable remains synonymous with institutional existence – the lack of ability to exercise individual ► **choice**. The concept of choice is integral to the quality of life approach; Brown and Brown (2009) outlines two broad criteria necessary to ensure choice making is possible: (1) realistic and available opportunities must be present and (2) the individual must have the freedom to make a decision between available opportunities. They go on to say that an integral piece to this process is that choice must be clear and familiar and undertaken in an environment of total freedom. Amartya Sen (1995) and Martha Nussbaum (1999) write extensively on the importance of choice as an essential element to an individual’s quality of life. They discuss how quality of life should be measured in terms of actual available opportunities and the ability (based on either structural or individual constraints or freedoms)

the individual has in exercising choice over their state of being.

An important element of the institutions discussed in this entry is their ritualistic and regimented environment. Particularly in institutions of care in which staff are required to support daily activities, schedules around recreation, eating, sleeping, dressing, bathing, etc. are generally controlled. Perceived concerns around security and safety often limit activity options. Citing legal and social accountability has also encouraged continuous surveillance and the construction of panoptical style institutions (Goffman, 1961; Foucault, 1965). Other restrictions have been imposed on institutionalized people such as removing the opportunity to pursue personal relationships and the right to bear children (Park & Radford, 1998).

International Law

As an attempt to improve and protect quality of life for people with disabilities, the United Nations created the Convention on the Rights of People with Disabilities (CRPD) (UN, 2006). Article 19 of the CRPD requires that people with disabilities should have the opportunity to choose their own place of residence and should not be required to live in undesired living situations.

Movement Towards Deinstitutionalization

The movement in the Global North towards the deinstitutionalization of people with disabilities has been argued as coming from three factors: (1) the advent of psychoactive drugs to treat people with psychiatric disabilities, thereby eliminating the need for institutionalization; (2) research and activism influencing public policy makers of the anti-therapeutic and detrimental implications of large-scale institutions on residents' quality of life; and, lastly, (3) the fiscal pressures on the state and the search for cost-efficient community alternatives. The belief that institutions were anti-therapeutic coupled with the large fiscal burden they impose are widely understood to be the impetus behind the move to smaller-scale community alternatives.

Quality of Life Post-deinstitutionalization

While in the Global North most large-scale institutions have now been closed, this has not resulted in a fundamental change in the quality-of-life of those institutionalized. Community alternatives (small-scale group homes and agencies) are often rooted in the same charity-based models offering little opportunity for residents to exercise choice or autonomy. Moreover, due to community pressure of "not in my neighborhood," these homes are often in marginalized sectors of cities and communities, furthering stigma and exclusion (Scull, 1984).

Based on greater access to resources in the Global North, the deinstitutionalization movement has been able to make progress, reducing large-scale institutions into smaller-scale group homes and community alternatives. However, in under-resourced areas of the world, many people with disabilities or perceived as incapable of independent living are forced into large institutions where there are continued atrocious incidents of abuse (Disability Rights International, 2011).

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Institutions

- Care, Residential
- Dominant Social Paradigm

Instruction Outcome

- Goal Achievement

Instrumental Support for African-American Youth

- Social Support and Self-Worth Among African-American Youth

Insufficient Effort Responding (IER)

- Survey Responses with Insufficient Effort

Insurgent Planning

- Community-Based Planning

Integral Theory

- Meta-studies

Integrated Lifestyle Exposure Theory

- Risky Lifestyles and Self-Control

Integrating Community Indicators and Organizational Performance Measures

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Synonyms

Community indicators; Community QOL measures; Performance measures

Definition

Integrating community indicators and organizational performance measures is the process of incorporating metrics that quantify and track community conditions, values, and desired outcomes that emerge from, and actively involve,

citizens within a community (Phillips, 2003; Swain & Hollard, 2003), with a system of performance measures that assess and document the quality, efficiency, effectiveness, and outputs or/and outcomes of products or services provided by an organization, either public, private, or non-profit (Community Indicators Consortium, 2007; Hatry, 2006).

This integration and close relationship has a recent history and has the potential to constitute an enlightenment process for citizens and politicians. It provides evidence and accountability for performance, progress and improvement, clarity and transparency from the organizations that deliver the services, while enhancing the interest of citizens upon organizational progress, and the use of local data for dialogue and decision-making at the community level toward a better collective future.

If operating through a coordinated network, the integration process subsequently offers the possibility to advance the goals of a community and to improve its conditions, aiming ultimately to the understanding of positive community change and the development of public and civic maturity.

It will also desirably allow for the construction, development, and quality enrichment of new, comprehensive, and valid quality of life objective and subjective indices, and performance metrics regarding community life (Land, Michalos, & Sirgy, 2012). Furthermore, it can promote conditions for enhancing the legitimacy of the measurement procedures, namely, optimizing its methodological soundness and credibility, integrity, serviceability, and accessibility (Maggino & Zumbo, 2012).

Description

A historical overview shows that community indicators and performance measures have been part of different traditions, frames, organizational genesis, and purposes related to societal and community conditions. Both are metric systems for quantifying and documenting processes, measuring progress or decline, but the aims and focuses,

the assessment strategies, the time perspectives, the type of stakeholders involved, and the subsequent use and public sharing of the information gathered tend to differ (Community Indicators Consortium, 2007, 2010).

To understand the differences, commonalities, and gains in incorporating them, we will first take a look separately to community indicators and to performance measures and then reflect upon the advantages and obstacles regarding its integration.

Community Indicators

Community indicators have been described as high-level outcome measurements that reflect the interplay between social, economic, and environmental conditions, trends, resources, and needs affecting a community's quality of life over time (Sirgy, Michalos, Ferriss, Easterlin, Patrick, & Pavot, 2006; Sirgy, Rahtz, & Lee, 2004; Sirgy, Widgery, Lee, & Yu, 2010). They provide a vehicle for addressing and understanding community issues from a holistic and outcome-oriented standpoint and are very useful within a perspective of decision-making and community improvement processes related to strategic priorities of citizens, reason why they provide insight into the overall direction of a community and are linked with desired community goals and outcomes.

Indicators are considered a necessary ingredient for sustainable change. Thereby, community indicators measuring systems hold much potential not only as effective evaluation and monitoring systems but also as mechanisms for effective positive community change (Cooksy & Nelson, 2001). As such, they can be extremely valuable to planners, and they represent a respected mechanism to improve monitoring and evaluation in forecasting and assessing programmatic outcomes (Land et al., 2012; Swain & Hollard, 2003).

As communities and local governments increasingly have become concerned about quality of life, community health, well-being, and sustainability, community indicators have become a widely used tool to measure the status of the quality of life and the progress being made toward improving it.

Indicators become more influential and prevailing once they are entrenched in the philosophies and practices of communities, and if they involve citizens. They also exercise particular influence in the community life and development if they represent a socially constructed and shared meaning, shaped inside the community of strategy actors and leaders (Phillips, 2003).

For this reason, the systems of community indicators tend to take into consideration and reflect long-term progresses or declines through credible and reliable data and stimulate public dialogue, engaging community residents in networks devoted to the selection of high-level civic indicators and providing the most accurate picture of existing resource levels and how they are used (Coob, 2000). The procedure involves a comprehensive approach where individuals, agencies, and institutions, through a community-based participatory and collaborative effort, co-construct visions and build consensus, committed to influence and improve community conditions (Innes & Booher, 2000).

Organizational Performance Measures

Performance measures are essentially enduring evidence-based metrics used to document the outputs of services provided by governmental and nongovernmental entities, private and non-profit. They tend to be part of strategic planning efforts, of a performance management process, or/and of a reporting system (Tangen, 2004).

Performance measures quantitatively tell us something relevant about services, products, and the processes that create them. They are tools aimed to understand, manage, and improve what organizations do, in a regular and equity manner (Hatr, 2006). That is why performance measures tend to be systematic, in-depth approaches, seeking to produce knowledge through evaluation and to achieve performance efficiency and effectiveness, usually in the context of improving costs in relation to programs and agencies. Some consider that they are mainly focused in economic success and financial performance, but others stress that their leading purpose is to support the mission assignment from the highest organizational level downward and to improve organizational

performance, in relation with the resources that the organization has (Hatr, 2006; Neely, Gregory, & Platts, 2005).

Visions for Future Integration: Consistencies, Advantages, and Challenges

In summary, community indicators tend to be broader, societal outcomes, evolving from communities and created through dialogue and consensus building, typically insulated from political interests, while performance measures tend to be narrower programmatic outcome markers, aimed to assess if the services or products provided by an organization responded to its interests – political, economic, or others – and to what was strategically planned. The first can be described as “rhizomatic stories of the alive” (Kinman, 2011), while the second might be better expressed as efficient strategic figures. Nevertheless, the commonalities – the possibility and aim to quantify, assess, plan, and guide impacts of indicators and measures, either community or performance ones, and the possible future changes dependent upon credible reliable data – relate these metrics and allow for an advocacy agenda toward its integration.

This is the case of the distinguished work of the Community Indicators Consortium, which has intentionally and devotedly been promoting public awareness, forums, data, and experts gathering on this issue, since 2005. It is accessible online at www.communityindicators.net.

Only recently have some programs around the world, at the state and local levels, actually combined strategic planning, public policy, performance management, and budget decision-making processes, with a citizen and community-driven indicator program, ultimately achieving measurable results that are community impelled and publicly translucent.

The depth and breadth of the knowledge and positive consequences that thereby emerge from this integration is not always obvious nor easy. Some of the reasons are linked with the potential different foci, aims, and procedures between the two measures. These also include differentiation of methods – using more analytic or more activist/interventionist focus – and of paradigms,

either primarily post-positivist or social constructivist (Nelson & Prilleltensky, 2005). There also tend to be a restricted awareness of where and when that incorporation is made, encompassed with low levels of trust that constraint access to data, and limitations in assigning responsibility for improving community conditions.

Nevertheless, the merge might be the source of promising practices, and of better research, and increase the relevance and impact of both metrics. The expected result of the advance of the knowledge of community indicators and organizational performance measure integration will permit the training and other outreach material to help community leaders and stakeholders improve or inform decision-making and create measurable, positive change in communities. It will also allow for the possibility of the civic community indicators to determine the impacts of the performance measures, linking both to results aroused by quantification, either of needs and dreams of the community, resource allocation, sustainability, policy decisions emerged from data, and future goals, choices, and priorities.

The values of transparency, accountability, trust, and performance surface as benefits of the integration (Community Indicators Consortium, 2007, 2010; Holzer & Lee, 2004). In fact, the active participation and engagement of citizens with the consequential growth of awareness, relating to community issues and to governmental and organizational services and products, its alignment with citizen's priorities toward positive community transformation, the normative tracking and strategic decision-making, and the open and effective communication of results, will evolve from a virtuous relational bond between the two types of measures.

One final vision for the future of this integration involves a link between strategic and annual performance planning with metrics documenting the outputs and outcomes, having citizens and other key community stakeholders participating in the development of those output and outcome metrics through forums, advisory boards, and feedback and communication systems (Community Indicators Consortium, 2010).

Cross-References

- [Community](#)
- [Community Indicators](#)
- [Community Indicators Victoria](#)
- [Community Indicators Consortium](#)
- [Performance Measures](#)

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Integration

- ▶ Harmony

Integration Models

- ▶ Immigrants, Responses to

Integration of Immigrants

- ▶ Immigrants, an Overview

Integration Policies

- ▶ Immigrants, Responses to

Integrative Medicine

- ▶ Complementary and Alternative Medicine (CAM)

Integrative Model

- ▶ Metatheory

Intellectual Disabilities

- ▶ Developmental Disabilities

Intellectual Disability

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Synonyms

Learning disabilities; Mental retardation

Definition

The 11th edition (2010) of the American Association on Intellectual and Developmental Disabilities Manual on Intellectual Disability, Definition, Classification, and Systems of Support defines intellectual Disability as follows: “Intellectual Disability is characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social and practical adaptive skills. This disability originates before the age of 18.” Synonyms include mental retardation, learning disabilities. Cognitive disability is also used, but some forms of cognitive disability do not involve lower levels of intelligence.

Description

The Conceptualization and Measurement of Quality of Life

Over the last three decades, the QOL concept has evolved from a sensitizing notion to a social

construct that guides program practices, outcomes evaluation, and continuous quality improvement. The issue that the concept addresses is the lives of persons and ensuring that citizens with IDD experience “the good life.” To this end, the QOL concept reflects the following four *quality of life principles*: (a) QOL is composed of the same factors and relationships for all people, (b) QOL is experienced when a person’s needs are met and when one has the opportunity to pursue life enrichment in major life activity settings, (c) QOL has both subjective and objective components, and (d) QOL is a multidimensional construct, influenced by individual and environmental factors. These four principles are congruent with a number of post-materialist values that are impacting people throughout the world. Chief among these values are the emergence of cultural modernization tenants related to equality, personal freedom, and self-fulfillment; an emphasis on relationships, spirituality, networking, and ecological sustainability; the power of communitarianism and social capital; and the rise of responsible individualism and taking responsibility for the design of our personal and social futures.

Based on the four quality of life principles summarized above, *quality of life can be defined as follows:*

A multidimensional phenomenon is composed of core domains influenced by personal characteristics and environmental factors. These core domains are the same for all people, although they may vary individually in relative value and importance. The assessment of quality of life domains is based on culturally sensitive indicators.

Over the last two decades, the author and his colleagues have developed and validated cross-culturally the quality of life conceptual and measurement framework that is summarized in **Table 1**. In this framework, *quality of life indicators* refer to QOL-related perceptions, behaviors, and conditions that define operationally each QOL domain. Furthermore, psychometrically robust and culturally sensitive indicators are used to assess either the person’s perceived well-being (“self-report”) or an objective indication of the person’s life experiences and

Intellectual Disability, Table 1 Quality of life conceptual and measurement framework

Factor	Domain	Exemplary indicators
Independence	Personal development	Activities of daily living
	Self-determination	Choices, decisions, personal goals
Social participation	Interpersonal relations	Community involvement
	Social inclusion	Human and legal
Well-being	Emotional well-being	Safety and security
	Physical well-being	Health and nutrition status
	Material well-being	Financial status, employment

circumstances (“direct observation”). More details about the development and validation of this framework can be found in Schalock et al. (2005) and Wang et al. (2010).

The Impact of the Quality of Life Concept

The application of the quality of life concept has had two primary impacts on persons with intellectual disability. In large part, these impacts on service delivery systems throughout the world are related to its emphasis on the principles of human potential, positive psychology, inclusion, equity, self-determination, empowerment, and the rights of citizenship. These two impacts relate to the provision of *individualized supports* and to the evaluation of *personal outcomes*.

Provision of Individualized Supports

Since its introduction into the field of intellectual disability in the mid-1980s, the concept of *individualized supports* has been expanded to include a “system of supports” that provides a structure for the enhancement of *quality of life-related personal outcomes* that are interdependent and cumulative. The major components of such a system include technology-based devices, prosthetics, staff-directed activities, professional services, natural supports, and policies (Schalock et al., 2010; Schalock and Verdugo *in press*; Thompson et al. 2009). **Table 2** provides a

Intellectual Disability, Table 2 Exemplary support strategies aligned with personal outcome categories

Personal outcome category	Exemplary individualized supports
Personal development	Functional skill training, assistive and information technology, augmentative communication system
Self-determination	Choice making, personal goals, decision making, personal involvement in the ISP process
Interpersonal relations	Family involvement, circle of friends, natural supports
Social inclusion	Community activities, volunteer activities, varied community roles, environmental accommodation, natural supports
Rights	Public and organization policies and practices built on QOL-related values, statutory rights
Emotional well-being	Safe and secure environment, positive feedback, positive behavior supports, professional services, incentives, predictable environment, self-identity mechanisms
Physical well-being	Health care, mobility assistance, prosthetics, health promotion programs, proper nutrition/diets
Material well-being	Ownership, employment, transportation

template that summarizes how individualized supports can be aligned with each of the eight QOL domains/outcome categories listed in **Table 1**. This alignment enhances the individual's functioning in regard to the respective domain. Evidence of the effectiveness of one or more of these individualized supports on enhancing QOL-related personal outcomes can be found in Bonham et al. (2004), Felce and Emerson (2005), Gardner and Caran (2005), Schalock et al. (2007), and Walsh et al. (2010).

Evaluation of Personal Outcomes

National and international disability policy is currently premised on a number of concepts and principles that are person referenced (such as self-determination, inclusion, empowerment, individual and appropriate services, productivity

and contribution, and family integrating and unity) and system referenced (such as antidiscrimination, coordination and collaboration, and accountability). Over time, as our understanding of disability and human functioning has deepened and become more progressive, these evolving core principles have fostered public policy that promotes change based on various types of information (e.g., research, evaluation, quality assessment). They have also increased the need to generate outcome data that operationalize the core principles guiding public policy. Such data help to assess the effectiveness of public policies and practices, which creates a feedback loop that can be used for continuous quality improvement.

One of the major impacts of the QOL concept in the field of ID has been to provide a conceptual and measurement framework for the assessment of personal outcomes. This framework was presented in **Table 1**. *Personal outcomes* are generally defined as valued personal experiences and circumstances that follow as a result or consequence of some activity, intervention, or service, and are measured on the basis of QOL-related domains and indicators. These personal outcomes are used for multiple purposes that include reporting, monitoring, evaluation, and continuous quality improvement (Schalock and Verdugo in press).

Conclusion

In summary, the quality of life concept has contributed to a service delivery framework that is based on the values of dignity, equality, empowerment, self-determination, nondiscrimination, and inclusion. In addition, it has provided an outcome evaluation framework that focuses on evaluating quality of life-related personal outcomes associated with core quality of life domains and using that information for multiple purposes.

Cross-References

- [Down Syndrome](#)
- [Quality of Life, Conceptualization](#)

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Intellectual Disability (ID)

- Childhood Diseases and Disabilities

Intelligence

- Cognitive Function

Intensive Time Sampling

- Experience Sampling

Intentional Activity

- Life Satisfaction and Sustainable Consumption

Intentional Communities Care

- Care, Residential

Interacting Factors

- Moderators

Intercept, Slope in Regression

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Definition

The slope is the increase in the dependent variable when the independent variable increases with one unit and all other independent variables remain the same.

The intercept is the value of the dependent variables if all independent variables have the value zero.

Description

In statistics, the term “regression analyses” is used to refer to any techniques of analysis of the data focusing on the relationship between a dependent variable and one or more independent variables (Montgomery, Peck, & Vining, 2001). The dependent variable is also called endogenous variable and is by convention usually denoted by the capital letter Y. It is the variable of interest. The independent variables are also called exogenous variables and are by convention usually denoted by the capital letter X. When several independent variables are introduced in the model, the indices i are used to distinguish them: X_i is the i th independent variable. The independent variables are the ones that we believe can explain or determine the level of Y.

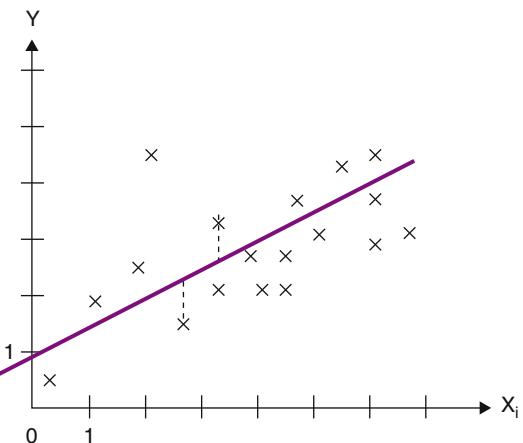
Regression analyses allow estimating the direction and the size of the change in the dependent variable that occurs when a one-unit change in one of the independent variables occurs while the other independent variables are held fixed.

Regression analyses require making assumptions about the form of the data generating process. Sometimes these assumptions can be tested if enough data is available. Different regression approaches perform differently in function of this form.

The more common form of regression is the linear regression analysis. It is important to realize that linear regressions analyses do not test whether the data are linear. It just assumes that the relationship between the dependent and independent variables is linear.

Usually the effects of the independent variables are assumed to be additive. If there are n independent variables, the relationship between the dependent and independent variables can be described by the following equation:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \zeta \quad (1)$$



Intercept, Slope in Regression, Fig. 1 Drawing the regression line fitting the data best

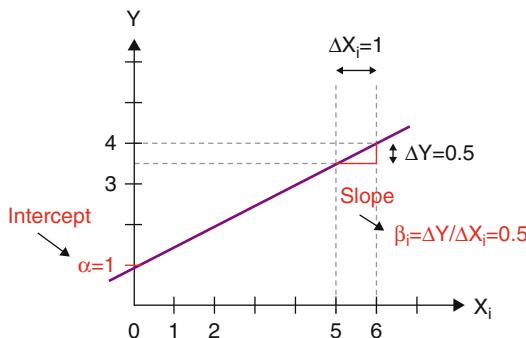
where α is called the intercept, β_i ($i = 1, 2, \dots, n$) is called the slope of the i th independent variable, and ζ is called the disturbance term (more information on the disturbance term here).

The goal of linear regression is the estimation of the parameters of the model: the α and the β_i of (1). The most common estimation method used is called least squares estimation. The idea is to find values for these intercept and slopes that minimize the sum of squares of the vertical distances of the points in the data from the line defined by (1).

For each experimental unit, the values this unit takes for the variables Y and X_i are known. This defines the points of the data from which we want to find the straight line that best predicts the dependent variable from the independent variables (cf. Fig. 1).

Regression analyses are used for making prediction. They are also used to explore the relationships between several variables and try to determine which independent variables are related to the dependent variable and to what extent. Comparisons of the intercepts and slopes of two or more regression lines are widely used too.

α is the intercept. It gives the predicted value of the dependent variable when all the independent variables take the value zero. It defines the elevation of the line. If there is only one independent variable, α is the value in which the regression line crosses the Y-axis.



Intercept, Slope in Regression, Fig. 2 Graphical representation of intercept and slope

β_i is the slope of the i th independent variable.

The slope quantifies the steepness of the line. It is also referred to as the impact coefficient of the variable X_i on the variable of interest Y . It indicates in how much Y changes given a one-unit change in X_i , all the other independent variables kept constant. A negative value of the slope indicates that there is a decrease in Y when X_i increases. A positive value on the contrary indicates that the variables are moving in the same direction: when X_i increases, Y increases too, and when X_i decreases, Y decreases too. It can be computed as the ratio of the changes in Y by the changes in X_i (see 2). It is expressed in the units of the Y -axis divided by the units of the X -axis:

$$\beta_i = \Delta Y / \Delta X_i \quad (2)$$

Focusing on only one independent variable X_i , the intercept and the slope can be read easily in a graph.

When X_i equals 0, then Y equals 1, so the intercept is 1. The slope is the change in Y obtained for a one-unit change in X_i . Since the relationship is assumed to be linear, this change is similar for all values of X_i : it is the same when moving from $X_i = 1$ to $X_i = 2$ and when moving from $X_i = 5$ to $X_i = 6$. In Fig. 2, the change in Y is measured for a change in X from 5 to 6. When X_i increases from 5 to 6, then Y increases from 3.5 to 4, i.e., an increase of 0.5. Therefore, the slope is $\Delta Y / \Delta X_i = 0.5 / 1 = 0.5$. So for every increase of 1 in X_i , there is an increase of 0.5 in Y . Since

the intercept is 1 and the slope 0.5, if we ignore the disturbance term, we have that $Y = 1 + 0.5 X_i$.

As for any estimates, ► standard error can be computed for the intercept and the slopes. Their direct interpretation may be difficult but they can be used to create confidence intervals. A confidence interval is a range within which there is a high degree of certainty that the true value of the parameter lies. Most often, the 95 % confidence intervals are the ones considered. Under the assumptions of linear regression, the 95 % confidence interval is defined as the interval such that there is a 95 % chance that this interval contains the true value of the parameter of interest (either intercept or slopes here). As long as these intervals are relatively narrow, meaningful inference can be made.

The confidence intervals can be used to test the significance of the difference between the intercept and slope of two regression analyses, for instance, of regression analyses made in two different countries or for two groups of respondents with different characteristics. If there is no overlap between the confidence intervals of the two regression analyses, then we can conclude that the intercept (respectively the slope) is statistically different in the two regression analyses. On the contrary, if there is overlap, we conclude that the intercept (respectively the slope) is not statistically different in the two regression analyses.

The confidence intervals can also be used to test if the slope (or any other parameter of interest) is significantly different from zero. If zero is in the confidence interval of the slope, then we conclude that the slope is not significantly different from zero. This means that there is no significant linear relationship between the independent and the dependent variable. P-value testing the null hypothesis that the overall slope is zero can also be obtained from all basic software. It is usually calculated from an F test. The p-value is the probability that randomly selected points result in a regression line at least as far from the horizontal line than the regression line observed for the specific data analyzed. Usually, if the p-value is lower than 5 %, we reject the null hypothesis meaning that the slope is significantly different from zero.

Cross-References

- ▶ Confidence Interval(s)
- ▶ Disturbance Terms
- ▶ Inference, Statistical
- ▶ Standard Error

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Intercepts

- ▶ Regression Coefficients

Interdecile Human Development Index (IDHDI) in India

- ▶ Human Well-Being in India

Interdependence

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Definition

Interdependence is a dynamic set of relationships in which the participants are self-reliant, while at the same time being mutually responsible to each other.

Description

Participants of an interdependent group usually share a common set of goals and principles. In an interdependent relationship, members may

be emotionally, economically, or ecologically responsible to each other.

The term can currently be explored as (1) a global occurrence in which all markets are impacted on by other markets, and therefore, one country depends on another – global interdependence. In this way, our daily lives are affected by the activities of other people around the planet. It is also a concept describing (2) the relation between the individual and the collective. Here, both individual and ▶ community well-being are impacted on, bridging the local and the global demonstrating that members are part of rather than apart from both other members of the group and the natural environment.

According to Simms, Moran, and Chowla (2006), cultural awareness of interdependence can be traced back as far as the depiction of city life depending on its rural hinterland in Virgil's Eclogues written over 2000 years ago. However, it is much more recent as a conscious political initiative. In 1929, in leading the independence movement in India, Gandhi advocated the simultaneous importance of interdependence as much as self-sufficiency. With the advancement of communication technology, a new electronic interdependence has also been recognized. In 1962, McLuhan predicted that economic globalization would be led by such technology referring to "the global village" (ibid). More recently, a UN conference on human rights in 1993 produced the Vienna Declaration and Program of Action, asserting that ▶ human rights is universal, invisible, and interdependent and interrelated.

In terms of individual and collective consumption, interdependence is an inherently ecological concept describing dynamic, mutual reliability, and responsibility. For example, the sustainability champions at the David Suzuki Foundation launched a declaration of interdependence at the Earth Summit in Rio de Janeiro in 1992. In addition, there have been a number of interdependence days declared in major international cities (www.interdependencemovement.org). Such declarations and initiatives demonstrate that global interdependence is a reality wherein the

consumer goods purchased and the technology we use individually and locally are often produced and impacted on by countries all over the globe.

Massey (2007) advocates an assertion of local relational agency that is rooted in the realities of recognizable interdependence. This can move away from the grounds of individualized culpability towards the terrain of collective responsibility and as a result ► **collective action**. Local place, argues Massey (2007), can be one potential basis for political organization around responsibilities. However, what Massey suggests is a networked, practiced internationalism. It is a local internationalism. This is akin to the concept of glocalization (e.g., Wellman, 2002), which has been used to demonstrate the human capacity to bridge scales and to help overcome boundaries in merging the global with local considerations.

Such action towards local interdependence must therefore occur at an appropriate scale. Practical examples can be seen in initiatives to enhance local community interdependence and community ► **resilience** in the form of the international Transition Towns movement (www.transitionnetwork.org/). This movement recognizes not only the integral links and interrelationships between humans and between humans and the natural environment but also, in the light of that knowledge, a particular worldview. Orr (1992) uses the term “ecological literacy” to imply the ability to recognize such interdependency.

Cross-References

- Collective Responsibility
- Community Resilience
- Ecological Literacy

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Interdependence with the Environment

- Nature Relatedness and Subjective Well-Being

Interdependent and Indivisible Rights

- Human Rights

Interdependent Preferences

- Consumption Externalities

Interdisciplinarity

- Design, an Overview

Interdisciplinary Studies

- Meta-studies

Interest

- Intrinsic Motivation
- Motivation

Interest in Politics in Israel

► Israeli Democracy Index

Intergenerational Communication Satisfaction Across Cultures

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Definition

Intergenerational communication satisfaction-dissatisfaction refers to the positive or negative affect experienced by one or more parties when different age groups encounter or converse with each other.

Description

Satisfying relationships with other people are established through communication, and our ability to communicate well is important (Rossiter & Pearce, 1975). A significant body of work has been directed to measuring the concept of “communication satisfaction” (e.g., Downs & Hazen, 1977; Hecht, 1978) and how it operates in the workplace mediating occupational outcomes, such as organizational climate and ► [job satisfaction](#) (e.g., Zwijze-Konig & de Jong, 2007). Recently, the notion has been invoked in the intergenerational sphere in terms of intergroup contact between young adults and their elders (e.g., 65-year-olds). Year after year with large classes, students estimate that (only) 8 % of their interactions involve older people, and the number increases to 12 % if family members are specified. When it comes to the *quality* of these infrequent encounters, students find them very dissatisfying, and they blame older people for it (Williams & Giles, 1996). In addition, younger

people openly acknowledge that they try and avoid conversations with older adults and if they somehow find themselves in them, try and end the interaction as quickly as possible.

Drawing on strategies from communication accommodation theory, the communicative ingredients of these intergenerational conversations indicate that younger people over-accommodate their elders who, in turn, under-accommodate them (Giles & Gasiorek, 2011). Over-accommodation is illustrated by younger people often talking to older people (based on age stereotypes) in grammatically simpler and slower ways than they would to their peers, and this can be interpreted as patronizing and demeaning by older folk and especially those who are physically and cognitively active. Under-accommodative talk is that which is topic-tangential and verbose and can be illustrated in older people disclosing excessively – and oftentimes out of the blue – about hard and painful times they have endured. Hence, both age groups do not accommodate each other optimally and are, in fact, “missing each” other communicatively. This is compounded further by studies which have found a relationship between these communication variables and ► [self-esteem](#) and ► [life satisfaction](#); the more older people feel that they are not being accommodated by young people, the lower the values of these outcome variables. In other words, quality of life is diminished if you find yourself being put down, left to feel past it, and avoided in conversations with younger people.

The above studies, and the theories driving them, have typically been conducted in Western settings, mostly in the UK, Canada, and the USA (Hummerc, 2012). Given that aging is, in part, a cultural and social construction (Pecchioni, Ota, & Sparks, 2004), it was anticipated that “intergenerational communication climates” should be far healthier in contexts purportedly practicing filial piety (i.e., veneration for older people, particularly family members) than in the West. One finding that has consistently emerged across very different cultures we have studied, including South Africa, Ghana, Mongolia, Iran, India, and Bulgaria (e.g., Giles, Hajek, Stoitsova,

& Choi, 2010), is the so-called communicative respect-plus-avoidance pattern. In such studies, young adults (typically 22 years of age) are asked to judge, in general terms, their prior interactions with other young adults, middle-aged people, and elderly adults. Given the oft-quoted claim that “age is more than a (chronological) number” and that age boundaries vary subjectively within as well as between cultures, informants were invited to decide themselves what constituted these three age categories. We required them to evaluate the latter in terms of:

Traits relating to *age stereotyping* (factors of so-called personal vitality and benevolence)

Behaviors they felt they ought to adhere to (age norms of “politeness” and “deference”)

Communicative behaviors they enacted (factors of so-called respect and avoidance)

The satisfaction and ► *enjoyment* experienced in conversations (i.e., intergenerational communication satisfaction)

As informants moved from judging young adults to middle-aged people to elderly people, the more positively these targets were perceived in terms of the age norms of politeness and deference, the age stereotype of benevolence (e.g., kindness and wisdom), and communicating respect. However, there was also a strong negative linear relationship on a couple of other factors; as others age, informants reported less satisfaction in talking to, and were avoidant of, them.

In studies across a range of Asian contexts (including the Vietnams, Philippines, China, and Japan), when cross-cultural differences do emerge, intergenerational communication climates are perceived to be more positive in *Western* settings (Giles, McCann, Ota, & Noels, 2002). It seems that filial piety is eroding in cultures that have modernized where the economic and social (as well as technological) power is now mostly in the hands of young people – a pattern not historically apparent until recent times. Put another way, as problematic as the plight is of older people in the West, it is less favorable in other cultures thus far investigated. As a case study, let us look at a cultural comparison, revisiting the variables mentioned above,

between American and Bulgarian students (Giles et al., 2010). Very little social gerontological work, let alone on communication and aging specifically, has been conducted in East European countries (see, however, Pachkova, 2006; Stoitsova, 2006). It has been estimated that the population aged over 60 years has increased 25 % in the last 30 years, and recent census data from each country shows that those over 65 are 12.8 % of the population in the USA (in 2010) and 18.5 % for Bulgaria (in 2011). The World Bank reported in 2007 that such changes had significant implications for the need to improve ► *healthcare* for older people and pensions in this part of the world.

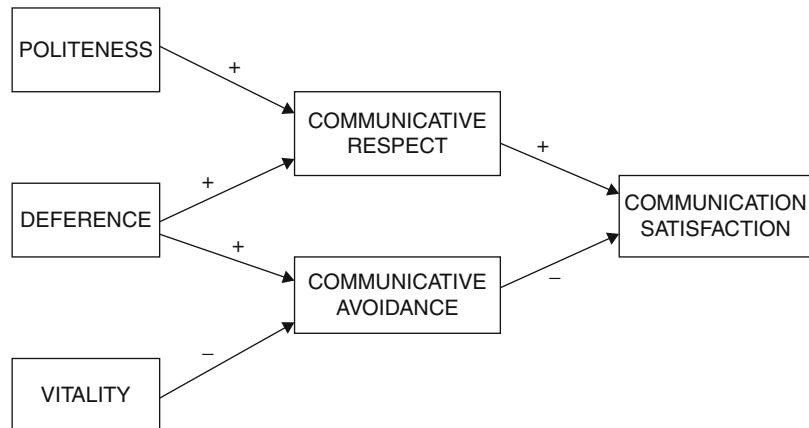
► *Cultural values* in Bulgaria (together with, arguably, more traditional norms of filial piety) are significantly less individualistic, more masculine, higher power distant, and more uncertainty avoidant than in the USA (Davidkov, 2009; Hofstede, 2001). Although, in most cultures, different generations are likely to be reared in different historical times with different value systems that can ferment miscommunication between them (Myers & Davis, 2012), this seems particularly acute in Eastern Europe where older people, unlike their younger counterparts, were politically socialized under the social constraints of a communist regime. For younger Bulgarians enjoying democratic ideals in a free market economy, they are likely to have socially differentiated themselves away from more traditional conceptions of intergenerational ► *solidarity* and obligations that may have implications for what is acceptable communication between age groups. Indeed, recent data from Davidkov (2009) cited above suggests that Bulgaria is more individualistic now than it was caricatured as being some 20 years ago and may, in part, be due to the impact of a unique generation of young people contributing to that trend.

The findings from our Bulgarian-USA study (Giles et al., 2010) show that when it came to judging conversations with elderly people, American students were more:

Polite and deferential in their adherence to age norms

Intergenerational Communication Satisfaction Across Cultures,

Fig. 1 Predictors of intergenerational communication satisfaction (Giles, Khadavy, & Choi, 2012, p. 361)



Attributed more benevolence
Communicated more respect
Judged elderliness to begin later (61.7 versus 55.85 years)
Yet were *more avoidant*

When talking with older people, intergenerational communication satisfaction for younger people in both cultural settings was predicted by how lowly conversationally avoidant (the most potent factor) students reported themselves to be as well as their need to be polite. However, communicating respect to older people and believing they have more personal vitality (e.g., healthy, active) also uniquely contributed to predicting satisfaction in the USA and Bulgaria, respectively. Interestingly, how benevolent older people were construed to be had no effect in this equation, and so Fig. 1 provides an overall schema, cross-cultural nuances notwithstanding, that indicates some of the important factors shaping young people's feelings of intergenerational communication satisfaction.

Discussion

Five major issues emerge from the foregoing. First, communication satisfaction is important to young people not only in their relationships with each other and in the workplace as introduced at the outset but also in interactions across the lifespan that can affect elder quality of life. Despite the research overviewed herein, the construct of communication satisfaction has not yet

assumed prominence in process models of intergenerational communication and relations. Second, and across many different cultural contexts, while there are normative pressures among young people to feel and act deferentially to older persons, they are, nonetheless, very ambivalent to the extent that they feel dissatisfied talking with their elders and actively try and avoid it. Third, cultures vary not only in what predictor variables are responsible for intergenerational communication satisfaction-dissatisfaction but also in the negativity of it. Fourth, to intervene in this pernicious cycle which ultimately stymies quality of life for all age groups, educational programs need to be devised and implemented at an early age to break down age stereotypes and engender less avoidant and more appealing interactions with older folk. That said, such a stance has to be bilateral, as older people for their part also contribute to this communicate melee by under-accommodating younger people. Finally, in addition to aging being "in the mind" and you are "as old as you feel," successful aging is also predicated on how you communicate and are communicated to (Giles, Davis, Gasiorek & Giles, 2012).

Cross-References

- Life Satisfaction
- Norms
- Self-Esteem

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Intergenerational Transmission of Subjective Well-Being

► Parent-Child Relationship(s)

Intergroup Aggression

► War

Intergroup Contact and Prejudice

► Prejudice

Intergroup-Achievement Disparities

► Educational Inequality

Inter-item Correlations

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Synonyms

Cronbach's (alpha); Internal-consistency reliability; Test-retest reliability coefficient

Definition

Inter-item correlations are an essential element in conducting an item analysis of a set of test questions. Inter-item correlations examine the extent to which scores on one item are related to scores on all other items in a scale. It provides an assessment of item redundancy: the extent to which items on a scale are assessing the same content (Cohen & Swerdlik, 2005). Ideally, the average inter-item correlation for a set of items should be between .20 and .40, suggesting that while the items are reasonably homogenous, they do contain sufficiently unique variance so as to not be isomorphic with each other.

When values are lower than .20, then the items may not be representative of the same content domain. If values are higher than .40, the items may be only capturing a small bandwidth of the construct. Inter-item correlations address issues relating to a scale's fidelity of measurement, how well the instrument is measuring some construct (e.g., its internal consistency, Cronbach, 1951). Finding the judicious blend of overlap and diversity is the key issue to consider when examining correlational overlap among items (Allen & Yen, 2002).

Cross-References

- ▶ [Alpha Reliability](#)
- ▶ [Internal Consistency Reliability](#)
- ▶ [Reliability](#)
- ▶ [Test-Retest Reliability](#)

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Intercultural and Cultural Segregation

- ▶ [Ethnic Intercultural and Social Cohesion in Yugoslavia](#)

Intercultural and Group Size

- ▶ [Ethnic Intercultural and Social Cohesion in Yugoslavia](#)

Intercultural and Sex Ratios

- ▶ [Ethnic Intercultural and Social Cohesion in Yugoslavia](#)

Intercultural and Spatial Segregation

- ▶ [Ethnic Intercultural and Social Cohesion in Yugoslavia](#)

Intercultural in Yugoslavia

- ▶ [Ethnic Intercultural and Social Cohesion in Yugoslavia](#)

Intermediate Variable Analysis

- ▶ [Mediation Analysis](#)

Internal Conflicts and Chronic Obstructive Pulmonary Disease (COPD)

- ▶ [Psychological Distress and Chronic Obstructive Pulmonary Disease \(COPD\)](#)

Internal Consistency

- ▶ Internal Consistency Reliability
- ▶ Ordinal Alpha

Internal Consistency Reliability

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Synonyms

Internal consistency; Internal consistency reliability

Definition

Internal consistency reflects the extent to which items within an instrument measure various aspects of the same characteristic or construct.

Description

Internal consistency is a measure of reliability. Reliability refers to the extent to which a measure yields the same number or score each time it is administered, all other things being equal (Hays & Revicki, 2005). Classical test theory views an observed response as consisting of the sum of true score and error (Nunnally & Bernstein, 1994). True score for an individual is assumed to be invariant on repeated measurements. However, two parallel measurements will yield nonidentical observed scores as a result of random error of measurement. Because random errors are normally distributed, the true score will be located at the mean of the distribution of parallel measures. Observed scores actually include true score, systematic error, and random error components. If no

random error is present, the reliability is 1.0. Reliability approaches zero as the relative amount of random error increases.

Both the true score component and systematic error contribute to the reliability of the measure because they drive the observed score for an individual toward a consistent value. Systematic error leads to bias in measurement, because it causes the score to be consistently too high or too low relative to the true score.

Reliability assessment involves examining agreement between two or more measures of the same thing. There are four basic categories of reliability estimation, each reflecting somewhat different ways by which random error of measurement is estimated: inter-rater, equivalent forms, test-retest, and internal consistency reliability.

Internal consistency reliability for a scale is a function of the number of items and their correlation. Random error due to item selection is modeled in this type of reliability estimate. Cronbach's (1951) alpha is the coefficient commonly used to estimate the reliability of instruments based on internal consistency. The Cronbach's alpha coefficient has values from 0 to 1, where greater values represent greater levels of internal consistency. Cronbach's alpha is defined as

$$\alpha = \frac{K}{K - 1} \left(1 - \frac{\sum_{i=1}^K \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

where K is the number of items, σ_x^2 the variance of the observed total test scores, and $\sigma_{Y_i}^2$ the variance of item i for the current sample.

Cronbach's alpha can be calculated using a two-way fixed effects model described for inter-rater reliability with items substituting for the rater effects. Generally, the researcher is most interested in the reliability of the average of the items (rather than the intraclass correlation or estimated reliability of a single item). Feldt, Woodruff, and Salih (1987) provide an equation for computing the significance of difference between alpha coefficients.

Reliabilities exceeding 0.70 are acceptable for group comparisons, and reliabilities of at

least 0.90 are recommended for individual assessments (Hays & Revicki, 2005; Nunnally & Bernstein, 1994).

Cross-References

- ▶ [Internal Consistency Reliability](#)

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Internal Locus of Causality

- ▶ [Choice](#)

Internal Migration

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Synonyms

[Geographical mobility](#); [Interstate migration](#); [Regional mobility](#)

Definition

Internal migration is a term used by demographers to describe residential moves from one administrative district (e.g., a county, province, or state) or geographical labor market to another within the boundaries of a nation. It is readily distinguished from international migration, which describes residential moves from one sovereign country to another.

Description

The term came into use in the nineteenth century to describe the movement of people from the countryside to the cities of Europe, the movement of people to the west in the United States, and the forced migration of African Americans through the interstate slave trade. In 1965, the International Union for the Scientific Study of Population (IUSSP) established a Committee on Internal Migration at the United Nations World Population Conference. The IUSSP proposed a simple measure of internal migration based on census enumerations. If the answer to the question “Where was this person born?” indicates a locality other than that where the person currently resides, the person migrated. If the place of birth is in the same country, the person is an internal migrant.

Waves of internal migration can be triggered by social change, political turbulence, or natural disasters. Industrialization and urbanization have been associated with massive migration from rural areas to urban areas with employment opportunities in western countries. These movements are ongoing in many other parts of the world as well.

Migration and Social Change: Great Migration

The Great Migration refers to the movement of African Americans (and some poor whites) from southern states to northern cities in the first half of the twentieth century, in search of better economic opportunities. This migration dramatically redistributed the African American population

(Tolnay, 2003). Return migration to the south happened predominantly at the end of life during the height of the Great Migration. More recently, however, changing opportunity structures have made the south an increasingly appealing destination, both in terms of economic opportunities and as a place with cultural significance (Falk, Hunt, & Hunt, 2004). Migration flows of African Americans from the north are particular directed to suburban southern destinations, and it seems that north–south migration is selective of African Americans with higher socioeconomic status (Falk et al., 2004).

Migration in the Wake of Disaster

Migration patterns can be part of large-scale social changes, but they can also be induced by specific events. Forced internal migration can result from violent conflict or natural disasters. There are many examples of forced internal migration in crisis regions across the world. In the United States, a recent example of internal migration caused by natural disaster is Hurricane Katrina, which was responsible for the internal displacement of nearly one million people during August and September 2005 (Yin, 2005).

Migration and Quality of Life

Even in stable times, many people move from one region to another for personal or family reasons. Internal migration is often motivated by a desire to improve ► **economic well-being**, to take advantage of better job opportunities or a lower cost of living in another part of the country. However, many other individuals and families migrate to reunite with family members or to form new families. Migration may also be motivated by the belief that the destination offers a better ► **quality of life** in terms of climate, ► **crime**, economy, public services, community characteristics, and other indicators associated with well-being. However, research drawing on multiple indicators has found no clear-cut empirical link between a state's quality of life and interstate migration (Ferriss, 2000; Rebhun & Raveh, 2006).

Sunbelt Migration

Disparate ► **population growth**, with population gains in the “sunbelt” and population losses in the “manufacturing (rust) belt,” has been widely discussed. Some see this trend as a reflection of migrants’ preferences for warm winters; however, Storper and Scott (2009) argue that structural economic changes have provided more opportunities for growth in sunbelt locations.

Locations in the southern United States are also the destination of seasonal migration, usually by retired individuals who live in the northern United States (“snowbirds”). These seasonal migrants are motivated by climate, but their numbers are difficult to ascertain (Happel & Hogan, 2002).

Migration Over the Life Course: United States

The incidence of internal migration also varies across the life course and tends to reflect transitions into and out of certain life stages. These transitions are also reflective of preferences or needs for certain types of environments. As of the 2000 US Census, age-specific migration rates were highest for the 15–19 and 25–29 age groups. The former generally leave their hometowns to attend college or serve in the armed forces. The latter are the young, single, and college-educated persons who are most likely to migrate into large metropolitan areas in search of employment. Those within the 30–34 and 35–39 age ranges and older are more inclined to move to low-density areas. At this stage of the life course, migration may be motivated by the search for better quality schools, low ► **crime**, greater abundance of recreational amenities, and less road congestion. Internal migration among retirees and pre-retirees away from large metropolitan centers largely reflects preferences for ► **housing affordability** and better natural amenities, among other factors (Plane & Perry, 2005). Among the older US population, the 2000 Census showed that persons 65–74 were more likely to have interstate movement relative to those under 65; the oldest old age group was the most mobile; older women were more likely than men to move; and older persons tended to leave the colder states of the northeast and midwest for the southern and

western states in search of better quality of life (He & Schachter, 2003). Older parents may also move closer to family, typically their adult children, or adult children will move closer to elderly parents in periods of failing health (Lin & Rogerson, 1995).

Migration Over the Life Course: International

In developing countries of Asia and Latin America, rural-to-urban and urban-to-urban internal migration is also of paramount importance (Deshingkar, 2006). Migrants are typically of working age and move in search of employment in rapidly industrializing zones. In some cases, moves are for marriage. In the host areas, internal migrants in Asian societies have reported negative experiences in their subjective well-being, at least in the short term (De Jong, Chamrathirong, & Tran, 2002). Migrants experience social, political, and economic exclusion, because most times they cannot access health care, education, and proper housing and may be working under poor health conditions (Deshingkar, 2006). Urban ► poverty and spatial ► segregation are on the rise in much of the developing world, particularly in Latin America (Cerutti & Bertoncello, 2003). This raises concerns of continued income inequalities across the life course, increasing crime rates, inequalities of citizenship rights, and negative environmental impacts that will eventually affect everyone.

Discussion

Internal migration is a form of migration. As such, it is conceptually distinct from ► residential mobility, which is a residential move within a single locality. However, there is no single definition of migration to separate the local from the migratory move. Opinions differ as to whether a shift in regional administrative authority is sufficient or whether geographical distance or some other factors might also weigh in. National statistical agencies use their own definitions and sometimes distinguish levels of internal migration between smaller (e.g., village, municipality, or county) and larger (e.g., province, district, or state) administrative units. Some people

prefer a conceptual definition of migration as the movement of people across labor markets, but this is a challenging concept to measure, and so researchers often resort back to measures of geographical mobility across administrative boundaries.

Cross-References

- Crime
- Economic Well-being
- Housing Affordability
- Population Growth
- Poverty
- Quality of Life
- Residential Mobility
- Segregation

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Internal Numerical Flexibility

- ▶ Work, Alternative/Flexible Arrangements

Internal-Consistency Reliability

- ▶ Inter-item Correlations
- ▶ Reliability Coefficient

Internalization of Appearance Ideals

- ▶ Self-Worth and Measures of Body Image

International Agencies' Crime Statistics

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Synonyms

International comparisons of crime statistics

Definition

International agencies' crime statistics are collections of data made by agencies such as the United Nations or the European Union to assist in making comparative studies of the crime situation in different countries.

Description

Usefulness of Comparative Data

Comparative data are useful for showing where governments need to concentrate their efforts. In many, perhaps most, countries, the justice system has developed without any specific planning or prioritizing whether criminal justice resources should go to the police, the prisons, community penalties, or legal aid. Comparisons with other countries will show that there are different ways of organizing criminal justice and give governments more possibilities for legal reform.

The general population and interest groups use comparative data to lobby for more resources and show where they consider that their country is deficient in criminal justice terms. This could relate to the number of policemen, to the way that different groups within the population are treated by the justice system, or to the sentencing considered too severe or not severe enough.

Pitfalls of Comparative Criminal Justice Data

No proper comparisons can be made without a proper understanding of both the criminal justice systems within countries and the statistical systems from which the statistics have been collected. Each country has its own legal system, with priorities given to dealing with the problem of crime in different ways. Some countries have a very large court and judicial system: others put their money into legal aid for defendants. Some countries have severe penalties for criminals leading to high prison populations: others confine prison to the most serious crimes only and deal with most of crime through minor penalties such as fines. Some countries feel due process must be followed and most cases have to go to court: others deal with crime by giving more powers to their police and

by some diversion from the courts to administrative processes. Without knowledge of these differences, false comparisons can easily be made.

Statistical systems also differ, with some countries spending a lot more money than others, for example, in conducting surveys of the population to supplement data from the justice systems. Even within systems which are superficially similar, such as police recording of crime, there are many reasons for the figures to differ. Police may record a crime as soon as they know about it or wait until they have more information and have passed the file to a prosecutor. In some countries, statistics have been developed as part of a wider controlling mechanism, recognizing that good statistics are essential for central control. Conversely, countries that wish to enhance localism in their governance tend to have looser statistical systems. Definitions of crimes may also differ: in some countries, the counting rules are written down so that comparisons can be made; in other states, the rules may be consistent across the country but there is no formal recording of them; in less developed countries, counting rules may vary according to the area of the country with no central direction.

The general rule should be that comparative statistics should only be the start of any comparisons between countries: a proper comparative study will need much more research into the legal and statistical differences.

Collections of Comparative Data on Crime and Criminal Justice

Seven data collections are considered. More details can be found in Lewis, 2012.

United Nations Survey on Crime Trends and the Operation of Criminal Justice Systems

The first UN Crime Trends Survey covered the years 1970–1980. Since then, there have been 12 surveys which now take place on an annual basis. Data are collected both on crime and on the operations of criminal justice systems. Every country in the world is targeted by a questionnaire sent to their Central Statistical Office. A considerable amount of detail is requested on crime and on

the work of each law enforcement agency. The data are used by the UN to compare policies; by donors to assess need; and by countries to allocate resources, to assist with legal reform, and to press for more statistical resources. The data bases are also available more generally for research institutes and universities (UNODC, 2012a).

The data are collected through a questionnaire sent each year asking for information on crime, police, prosecution, courts, probation, and prisons. More detail is given at UNODC, 2012b.

The survey is the only worldwide one with such a breadth of data collection. It is very valuable in having a consistent run of data back nearly 30 years. It is also flexible and arranged so that data are collected on up-to-date problems, such as human trafficking or bribery.

However, there are limitations. Around 50 % of all UN member states actually complete the survey and many of those do not complete it all. In some regions, for example, Africa, the completion rate is much less than 50 %, reflecting the low state of development of statistical systems more than any desire to hide the data from wider view.

Results are published widely. Cross-national crime statistics for over 120 countries are available covering 2003–2008 (UNODC, 2012c). These include statistics on police-recorded offenses and identified victims: statistics of the responses of criminal justice systems and resources devoted to them.

There is also extensive commentary and analysis, particularly through collaboration between the UNODC and HEUNI, the Helsinki-based European Institute for Crime Prevention and Control affiliated with the UN. Their latest publication “International Statistics on crime and justice” pulls together global responses to the UNCTS questionnaires, the most recent one included being the UNCTS-10 that allows the analysis of data up to 2006 (UNODC, 2012d).

World Prison Brief (University of London)

The World Prison Brief concentrates on a wide range of prison data. It is a more informal initiative, based at the International Centre for Prison Studies of the University of London, UK.

Information is obtained on the main prison indicators from contacts, mainly in the prison service of the individual countries. There are measures of total population, analyses by gender, age, foreigners, overcrowding, of remands, and recent trends. The data are presented in a straightforward way and are easily readable. The typical output is for an individual country. The material has a wide coverage with almost every country in the world responding to the questions (ICPS, 2012).

European Sourcebook of Crime and Justice Statistics

The Sourcebook is a much wider collection of data than the World Prison Brief. It contains data for well over 40 countries throughout Europe, including the EU, EU candidate countries, and other countries of Eastern and South Eastern Europe. Data on police, prosecution, courts, and corrections is collected every 3 years. Current databases cover 1990–2007 and the next survey will cover 2008–2010 (European Sourcebook, 2012).

Eurostat Data Collection

Eurostat is the statistical office of the European Commission. Justice and crime were only incorporated into EU Law during the mid-1990s, so data have only been collected from member states since then. Currently, data are collected on an annual basis (mainly from National Statistical Offices) on a small number of types of crime recorded by the police and on overall prison populations. Data are published annually (EuroStat, 2011).

International Crime Victimization Survey

A small number of countries have a second count of crime levels, those reported direct by the general population to statisticians through surveys. Such surveys often contain further questions about crime prevention activities of households, public satisfaction with the legal authorities, and so on. However, such surveys tend to vary considerably from country to country and comparative data are generally not available. However, a methodology has been developed to enable collection of more comparable data.

The International Crime Victimization Survey has a common questionnaire used for several different countries, translated as necessary, with similar sampling and analytical procedures in each country. Such a methodology has been shown to give good comparative data. The 2009 ICVS sweep collected only from the Netherlands, the United Kingdom, Germany, Denmark, Sweden, and Canada (ICVS, 2008).

Criminal Justice Systems (CoE: CEPEJ)

The Council of Europe sponsors the European Commission for the Efficiency of Justice (CEPEJ) that regularly collects a large amount of data on justice systems. CEPEJ emphasizes the comparison of judicial systems and the exchange of knowledge on their functioning. The scope of this comparison is broader than “just” efficiency in a narrow sense: it also emphasizes the quality and the effectiveness of justice. To fulfill these tasks, CEPEJ carries out a regular process for collecting data and evaluating judicial systems of all Europe's member states. This process is carried out annually, and material is published for each country from which returns have been received: an example for Germany can be found at Council of Europe (2008a). Comparative overviews of the data are routinely made available (Council of Europe, 2008b).

Prison Systems (CoE: SPACE)

The Council of Europe, through a questionnaire managed through the University of Lausanne in Switzerland, collects data annually on imprisonment and on community sanctions and measures (Council of Europe Space I, 2010). The Council of Europe also collects information on persons serving noncustodial and semi-custodial sanctions and measures, frequently referred to as “alternatives to imprisonment” (Council of Europe Space II, 2010). In both volumes, data are presented clearly in tables, maps, and charts, with associated metadata on any significant departures from the standard collection definitions. There is also a useful commentary on trends in the figures and on the quality of the statistics that have been collected.

Assistance from International Bodies for Collecting Statistics on Crime and Justice

International groups do not simply collect data on crime and justice. Several of them publish manuals or on-line computer-learning technologies aimed to improve data collection systems on crime and justice statistics.

United Nations Statistical Assistance

UNODC Manual for the Development of a System of Criminal Justice Statistics

This is a valuable document for reference and gives many ideas for good practice (UNODC, 2012e). However, it sets out an idealized system and does not address the more familiar problem of how to develop a statistics system for crime and justice in conditions of financial stringency. Neither does it suggest how to overcome an all too familiar position of lack of cooperation on information gathering between different legal and statistical agencies.

UNODC Manual for Victimization Surveys

This is an extremely useful document for those countries that have resources to undertake such a survey or can work with an international donor to conduct small-scale surveys, perhaps in cities (UNODC, 2012f).

UNODC Manual for the Measurement of Juvenile Justice Indicators

This is an excellent manual for countries that organize their juvenile justice systems in a separate way to other parts of their justice system (UNODC, 2012g). It goes wider than the justice system and includes both quantitative indicators and policy indicators. It also encourages judgements about the extent to which certain UN recommendations on the rights of children are allowed for under the policies of the country.

The UNODC Data for Africa Program

This program has the overall objective to *improve the knowledge on drugs and crime phenomena in Africa* (UNODC, 2012h). The program aims to

build the capacity of African countries to collect and analyze data and trends in drugs, crime, and victimization. Specifically, it aims to assist member states to generate better data and information on drugs and crime; strengthen data collection, analysis, and reporting at the national, regional, and international level; and provide a regional platform for exchange of data, information, and experiences. It comprises surveys on victimization and needs workshops and training and a series of publications.

World Bank Statistical Assistance

General Data Dissemination System (GDDS)

From 2004 to 2010, the World Bank ran a program of assistance to English-speaking countries in Africa, called the General Data Dissemination System (GDDS) (World Bank, 2010). Crime, justice, and ► **security** was one of several different statistical topics, both social and economic. GDDS consisted of workshops, visits by statistical and IT experts, reports on progress, and recommendations for the future. Its aim, which was broadly achieved, was to improve the collection, presentation, and use of statistics on crime and justice. Following the second phase of GDDS, the World Bank developed a virtual statistical system, including the material developed during GDDS modified to make them useful to all developing countries and give the most important features of a statistical system on crime and justice for statisticians to use without having to wait for technical assistance to be made available through international donors (World Bank, 2011).

Cross-References

- [Crime Estimates](#)
- [European System of Social Indicators](#)
- [Significance, Statistical](#)
- [Survey Research](#)
- [United Nations Yearbooks, Statistical Collections, and Databases](#)
- [Youth Violence](#)

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International Assessment of Educational Progress (IAEP)

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Synonyms

Education international assessment

Definition

The International Assessment of Educational Progress was an assessment of 9- and 13-year-old students in mathematics and science and was administered in 1988 and 1991.

Description

There were two administrations of the International Assessment of Educational Progress

(IAEP). The first was in 1988 and the second in 1991. Both of these studies were conceived, designed, and primarily funded by the US National Center for Education Statistics (with additional funding from the US National Science Foundation). There were several major contexts that gave rise to the IAEP surveys. The first context was a dissatisfaction with previous international studies that tended to take about a decade to complete, focused on research rather than policy questions, and were fraught with sample comparability issues. The second context was a rapidly growing education reform environment within the United States that was demanding more timely and more understandable policy-relevant data.

IEA Studies

The first organization to conduct international assessment studies was the International Association for the Evaluation of Educational Achievement (IEA, see Medrich & Griffith, 1992). Prior to the IEA studies, international comparative studies focused on the structure, processes, teaching pedagogy, curriculum, and fiscal resources of educational systems. The IEA studies focused on what is happening in the different countries that might improve educational outcomes and study the variables that might be the determinants of student learning. The IEA studies represented an enormous advance in international educational comparisons.

Early Education Reform Within the United States

Much of the education reform efforts that led to the IAEP studies started with the landmark *A Nation at Risk* study in 1983. The report stated, “Our nation is at risk. . . . If an unfriendly foreign power had attempted to impose on America the mediocre education performance that exists today, we might well have viewed it as an act of war” (US Department of Education, National Commission on Excellence in Education, *A Nation at Risk*, Washington, DC, 1983). The report sent shock waves through the educational establishment and galvanized the public and business leaders to demand that

substantial policy reform was needed to restore America’s economic competitiveness.

In 1983, the National Assessment of Educational Progress (NAEP) was completely redesigned (Messick, Beaton, & Lord, 1983). Prior to 1983 the NAEP design focused on item-level data, and it was not possible to glean larger policy implications from the findings. The redesign of NAEP provided a blueprint for future international studies. The NCES requested that future international studies have the look and feel of NAEP.

International Assessment of Educational Progress (IAEP-I)

The first 1988 *International Assessment of Educational Progress* (IAEP-I) was a survey of mathematics and science achievement in February, 1988, of 13-year-old students selected from public and private schools in six countries. More specifically five countries (Ireland, Korea, Spain, United Kingdom, and the United States) and four Canadian provinces were assessed. The main findings were reported in *A World of Differences* (LaPointe, Mead, & Phillips, 1989).

Five performance standards were selected for the assessment through a scale anchoring process (Beaton & Allen, 1992). This was done in order to provide a criterion-reference method to describe what students know and can do in easily understood terms. The use of performance levels to describe what students know and can do was a significant advancement in international studies and has subsequently been used in almost all international assessments.

International Assessment of Educational Progress (IAEP-II)

The second 1991 *International Assessment of Educational Progress* (IAEP-II) was a survey of mathematics and science achievement of 9-year-old students in 20 countries and 13-year-old students in 14 countries (with an optional geography component for 13-year-olds in 9 countries). The 20 countries were Brazil, Canada (4 provinces at age 9 and 9 out of 10 provinces at age 13), China (20 out of 29 provinces), England, France, Hungary, Ireland, Israel (Hebrew-speaking schools),

Italy (the province of Emilia-Romagna), Jordan, Korea, Mozambique (mathematics only), Portugal, Scotland, Slovenia, Soviet Union (14 out of 15 republics in Russian-speaking schools), Spain (Spanish-speaking schools, excluding Cataluña), Switzerland (15 out of 26 Cantons), Taiwan, and the United States.

The results of the study were published in two reports. These were *Learning Mathematics* (LaPointe, Meade, & Askew, 1992) and *Learning Science* (LaPointe, Askew, & Meade, 1992).

The Importance of the IAEP Studies

The IAEP studies served as an important model for how to conduct international assessments. The IAEP studies made huge advances (over prior IEA studies) in improving the quality of samples, turning results around faster, and summarizing results through scaled scores derived from item-response theory psychometric models. These same procedures were used subsequently in the future international studies such as the Trends in International Mathematics and Science studies (TIMSS), Progress in International Reading Literacy Study (PIRLS), and the Program for International Student Assessment (PISA) sponsored by the Organization for Economic Cooperation and Development (OECD).

Cross-References

- National Assessment of Educational Progress (NAEP)

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International Association for the Evaluation of Educational Achievement (IEA): Civic Education Study of 1999

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Synonyms

CIVED99; IEA CIVED; IEA Civic Education Study

Definition

The Civic Education Study (CIVED) is a cross-national survey that was conducted by the International Association for the Evaluation of Educational Achievement (IEA) in 1999. It was a study of young people's civic-related knowledge, skills, behaviors, and attitudes in 29 countries, and the core data collected from students are supplemented with data from the schools they attend. Since the primary publications from this study were released in the early 2000s, this data set has been used in secondary analyses to examine the ► civic engagement of youth and how national and school contexts can

influence its development. Some of these analyses have focused explicitly on the development of attitudes commonly associated with quality of life, including self-efficacy and confidence in the students' immediate educational contexts, and the desire to ensure a higher quality of life for others regardless of individual background.

Description

Procedures in Conducting the CIVED Study and Disseminating Its Results

Torney-Purta et al. (2001) describe the beginning of the CIVED study in 1994, when the IEA General Assembly voted to conduct a test and survey in this area. Prior to this point, the only survey of civic education conducted by IEA had been completed in 1971 and had focused on a relatively small number of countries (Finland, Ireland, Israel, Italy, the Netherlands, New Zealand, Sweden, and the United States) (Torney et al., 1975). By the mid-1990s interest in conducting a civic education study had been renewed, however, due to the political transitions to ►democracy that member countries in Eastern Europe had recently experienced and also to observations of decreasing interest in politics among young people in Western Europe.

To oversee the study, IEA appointed an International Steering Committee, chaired by Judith Torney-Purta at the University of Maryland, College Park (USA), and including members from Europe (Poland, Greece, Italy, Sweden, and Germany), Hong Kong, and the USA in addition to representatives from IEA. IEA also appointed an International Coordinating Center responsible for handling day-to-day operations associated with completing the study. The Coordinating Center was headed by Rainer Lehmann at the Humboldt University of Berlin (Germany). National Research Coordinators were also appointed in each country participating in the study and collaborated in the study's design and interpretation (Torney-Purta et al., 2001). Together, these committees and coordinators provided a multinational perspective on citizenship and civic education, which influenced the study.

The CIVED study itself was divided into two phases. In Phase I, researchers conducted a series of qualitative structured case studies in 24 participating countries: Australia, Belgium (French), Bulgaria, Canada, Colombia, Cyprus, Czech Republic, England, Finland, Germany, Greece, Hong Kong (SAR), Hungary, Israel, Italy, Lithuania, the Netherlands, Poland, Portugal, Romania, the Russian Federation, Slovenia, Switzerland, and the United States. The purpose of Phase I was to provide information about the nature of civic education across diverse participating countries. The case studies are summarized by Torney-Purta et al. (1999) and by Steiner-Khamsi et al. (1999).

Qualitative data collected in Phase I, together with input from the National Research Coordinators, informed the development of a theoretical framework and of test and survey instruments that were used in Phase II, conducted in 1999 when researchers surveyed nationally representative samples of 14-year-olds in 28 countries. Participating countries included 21 of the 24 countries participating in Phase I (except Canada, Israel, and the Netherlands, who chose not to participate in Phase II) as well as Chile, Denmark, Estonia, Latvia, Norway, the Slovak Republic, and Sweden. The sizes of the nationally representative samples ranged from 2,076 students tested in Belgium (French speaking) to 5,688 students tested in Chile. Clusters of students were surveyed within a stratified random sample of schools; therefore, to provide additional data on the context of civic education, surveys were also administered to principals and teachers of civic-related subjects in the sampled schools. In addition, a nationally representative sample of upper-secondary students (i.e., students in their final year of secondary education) was surveyed. Sixteen countries surveyed upper-secondary cohorts: Chile, Colombia, Cyprus, Czech Republic, Denmark, Estonia, Hong Kong (SAR), Israel, Latvia, Norway, Poland, Portugal, the Russian Federation, Slovenia, Sweden, and Switzerland (German).

After data were collected, researchers associated with the CIVED study developed several sets of scales to measure civic knowledge as well as several key attitude measurements.

Scales were developed using latent variable techniques, including confirmatory factor analysis (to ascertain scale dimensionality) and ► **item response theory** (to assess the fit of items within individual scales). These scales provide reliable and structurally valid measures of students' knowledge and attitudes, and cross-national comparisons of average scale scores are presented in the report on the study of 14-year-olds (Torney-Purta et al., 2001) and the report on the study of upper-secondary students (Amadeo, Torney-Purta, Husfeldt, & Nikolova, 2002). Schulz and Sibberns (2004) also provide additional information on the construction of these scales (and on technical aspects of Phase II data collection) in the CIVED Technical Report.

Since the publication of the major reports on the CIVED study, researchers in a variety of fields (including political science, psychology, and education) have conducted secondary analyses of these data, focusing on more complex analyses of narrower research questions. From 2003 to 2008, the Civic Education Data and Researcher Services (CEDARS) centered at the University of Maryland, College Park, served to support researchers interested in using this data set while conducting its own secondary analysis on a range of related topics. Most notably, Husfeldt et al. (2005) created a report on behalf of CEDARS in which they detailed the creation of several additional attitudinal scales, several of which were identified in the earlier Technical Report but never created. The scales created by Husfeldt and colleagues are included in versions of the data set made available through the Inter-University Consortium for Social and Political Research at the University of Michigan (ICPSR Reference No. 21661).

Connections Between the CIVED Study Content and Quality of Life Research

The instrument used to assess students in Phase II of the CIVED study included a civic ► **knowledge** assessment (including items on content knowledge and on skills on interpreting political material), a survey (including items on conceptualizations of democracy, attitudes, and

current and anticipated behaviors in addition to individuals' perceptions of the school context and school experience), and a background questionnaire (including demographic information, information about families, and general involvement with peers and in organized activities). The data collected through this instrument can be used to inform quality of life research in several ways: by providing data on social capital as experienced by young people (which can, in turn, be theorized to contribute to a higher quality of life); and by providing data on participating in one's school community (allowing a young person to take advantage of community networks), having a personal sense of self-efficacy (an aspect of well-being specific to the political realm), expressing a sense of well-being or power with respect to one's contributions to school (an aspect of well-being specific to the educational realm), and supporting of a high quality of life for diverse members of society.

Social Capital and Its Influence on Quality of Life
Connections can be made between quality of life and the CIVED study via social capital theory, which has been used in studies of adults to link community involvement and civic engagement to well-being (Helliwell & Putnam, 2004; Requena, 2002). Social capital theory also influenced the theoretical framework of the study, although it was not explicitly integrated into it (Torney-Purta et al., 2001). Different theorists have posited various ways in which strong social connections relate to individual well-being, and several of these variants have been explored in the CIVED data. In Coleman's conceptualization of social capital theory, for example, strong ties to family members are an important source of social capital (Coleman, 1988). Coleman posits that this is especially true for young people, as they indirectly benefit from the human capital that their parents have through such ties. In the CIVED survey, items related to the presence of parents/guardians in the home and the discussion of national and international topics with parents could be conceptualized as measuring aspects of social capital in the family. More specifically, discussion with families is considered

extensively as a predictor of civic outcomes in both primary and secondary analysis of CIVED data.

To contrast, Putnam's conceptualization defines social capital as something that communities hold as opposed to individuals (Putnam, 2000). Communities with stronger networks that foster more trust and a greater sense of belonging among its inhabitants can be said to possess greater social capital. In the CIVED study, students were asked to report on the extent that they themselves felt that institutions in their communities and nations were trustworthy. Responses to these items fell along two dimensions, and scales are available to provide summary information about responses. The first scale assesses the extent to which students report trusting government-related institutions, similar to ► political trust, and is featured prominently in both primary reports (Amadeo et al., 2002; Torney-Purta et al., 2001) and secondary analyses (Torney-Purta et al., 2004). The three countries with the highest levels of trust among 14-year-olds in 1999 were Denmark, Norway, and Switzerland. The second scale assesses students' trust in the media and is the subject of policy briefs on youth media consumption (Amadeo et al., 2004).

Benefiting from Strong Social Capital Through Community Participation

Individuals can tap into community sources of social capital through voluntary membership in community organizations. Traditionally social capital theorists have focused on participation in organizations serving adults (with children only benefitting indirectly from their parents' involvement), which some critics believe limits the utility of using social capital as a framework for understanding well-being in youth (Morrow, 1999). The CIVED study, to contrast, examines aspects of young peoples' participation in the immediate environments that are most salient to youth, including peer group and ► school engagement in addition to participation in youth-based community networks and families. Lave and Wenger (1991) refer to such participation as "legitimate peripheral participation" and posit that it serves as an important introduction

into civic life (and future adult involvement) for young people. In addition to the benefit that community involvement has on the well-being of the participating individual, such activities also serve to improve quality of life for the community as a whole by further strengthening social ties in neighborhoods (Torney-Purta & Barber, 2011).

The student background questionnaire contained a variety of items about the nature of participation in organized activities, including student council and participation in activities to benefit the community. The latter is especially salient to quality of life research, as it bears the most resemblance to the adult civic organizations thought to contribute to quality of life by social capital theorists. Participation in community service is frequently examined as it related to other civic outcomes, including expectations of future participation in the community (Torney-Purta, Amadeo, & Richardson, 2007).

Having a Personal Sense of Self-Efficacy

Parental connections, trust, and civic participation can best be conceptualized as antecedents of a high quality of life, rather than as measures of the construct itself. However, some scales that exist in the CIVED data can be conceptualized as measuring very specific constructs related to quality of life in the civic and educational domains. For example, self-efficacy can be thought of as an indicator of psychological well-being, and in the CIVED study, a measure of internal ► political efficacy assesses how young people feel about their ability to engage in ► political activities. Several pieces of secondary analysis have considered self-efficacy as it relates to trust (Torney-Purta et al., 2004) or expectations of future political participation (Schulz, 2005). Others, however, have focused on self-efficacy itself as the outcome, examining how it correlates to civic knowledge, in-school experiences, and background characteristics (Barber & Torney-Purta, 2009; Torney-Purta et al., 2008).

Expressing Well-Being Through One's Contributions to School

The CIVED study also examined two dimensions of efficacy in the school context. The first,

referred to as “confidence in the value of participation,” captures to the extent to which young people feel that they can work together through ► **collective action** to facilitate change in their schools and can be conceptualized as an assessment of ► **collective efficacy**. There is considerable correspondence between the countries where 14-year-old students showed high levels of satisfaction with their experiences of participating at school in 1999 and countries where university students showed high levels of satisfaction with their educational experiences about a decade earlier. This conclusion is drawn by comparing data found in a report on student well-being by Michalos (1991, p. 45) with CIVED data (Torney-Purta et al., 2001, p. 133). Samples were tested in twelve of the same countries in these two independent projects. In five countries (Chile, Colombia, Portugal, Sweden, and the USA), satisfaction scores were high in both studies; in five countries scores were low in both studies (Belgium, England, Germany, Hungary, and Switzerland); Norwegian students were high in 1999 and somewhat lower ten years earlier, while Finnish students showed the opposite pattern.

The scale measuring students’ satisfaction with their influence on their schools from the CIVED study has been used extensively as a predictor variable, in secondary analysis of expected participation, trust, political efficacy, and other political attitudes. The second dimension relates to the personal efficacy that an individual feels they have in facilitating change in a school (e.g., going to a teacher when they feel another student is being unfairly treated). This dimension is much less often explored than the former, having appeared only as an indicator of civic competence (a precursor of ► **active citizenship**) in a composite measure developed by Hoskins et al. (2011).

Valuing a High Quality of Life for Diverse Members of Society

Another connection can be made to quality of life by considering the CIVED study’s focus on social cohesion and diversity as a key domain of interest. Berger-Schmitt (2002) conceptualized

the reduction of social inequality, along with social capital, as key dimensions of social cohesion that she recommended be integrated into quality of life research. Secondary analysis of CIVED data has focused extensively on modeling young people’s attitudes toward ► **women’s rights** (e.g., Barber & Torney-Purta, 2009) and for immigrants (Husfeldt et al., 2005; Torney-Purta, Barber, & Wilkenfeld, 2007), and country-level averages on these scales are featured prominently in the major primary reports from the CIVED study (Amadeo et al., 2002; Torney-Purta et al., 2001). Such work provides researchers with an indicator of young people’s attitudes toward disparities in society (indicative of the current quality of life) and identifies the contextual factors associated with support for reducing such disparities (thus improving quality of life in the future).

Impact of the IEA Civic Education Study and Further Research

The impact of the CIVED study from 1995 (when the study began) to 2005 (4 years after the major reports were published) was discussed in a special issue of *Citizenship Teaching and Learning* edited by Torney-Purta (2007). It focused on how results from the CIVED study both reflected and shaped education policy and practice across many of the countries and regions participating in the CIVED study. Many of the findings most of interest to policymakers and teachers pertained to quality of life issues, most notably those relating to adolescents’ levels of trust and sense of collective efficacy with respect to social institutions and support for rights of women, immigrants, and other minority groups. More recently, the IEA completed the International Citizenship and Citizenship Education Study of 2009 (ICCS: Schulz et al., 2010), examining civic knowledge, attitudes, and engagement in 38 countries. Some of the concepts and scales that are of interest to quality of life researchers were included in this new study, allowing those interested in secondary analysis an opportunity to examine these issues in a new cohort of students.

Cross-References

- Active Citizenship
- Attitude Measurement
- Attitudes Toward Women
- Civic Engagement
- Collective Action
- Collective Efficacy
- Community Participation
- Confirmatory Factor Analysis (CFA)
- Democracy
- Education
- Item Response Theory
- Knowledge
- Political Activities
- Political Efficacy
- Political Trust
- School Engagement

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International Classification of Functioning

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Synonyms

ICF

Definition

In order to complement the International Classification of Diseases with a taxonomy making it possible to classify consequences of diseases, injuries, etc., already in 1980 the World Health Organization (WHO) launched the International Classification of Impairment, Handicap, and Disability (ICIDH). After years of international debate and successive revisions to update this classification system, in 2001 the current version of the International Classification of Functioning, Disability, and Health (ICF) was launched.

The ICF is a biopsychosocial model operationalized in the form of a hierarchical classification system, providing a common, international framework for health outcome measures. According to the ICF, the term functioning encompasses all body functions and structures, activity, and participation which are conceived as dynamic interactions between health conditions and contextual factors (i.e., personal and environmental) ([World Health Organisation] WHO, 2001).

No description of a person's health status is complete without reference to quality of life, and in the current scientific debate, there is emerging consensus on the need to unite the ICF concepts with the concept of quality of life (QOL) (Huber, Sillick, & Skarakis-Doyle, 2010). QOL is closely related to the concept of functioning as defined in the ICF (Cieza & Stucki, 2008). However, while QOL refers broadly to perceptions of all aspects of an individual's life, the scope of the ICF is delimited to health-related aspects of this broad concept. The more specific concept health-related quality of life (HRQOL) has a specific focus on the individual's perceptions of health-related domains of well-being (Cieza, Bickenbach, & Chatterji, 2008). Consequently, in the context of ICF, HRQOL should be considered (Huber, Sillick, & Skarakis-Doyle, 2010).

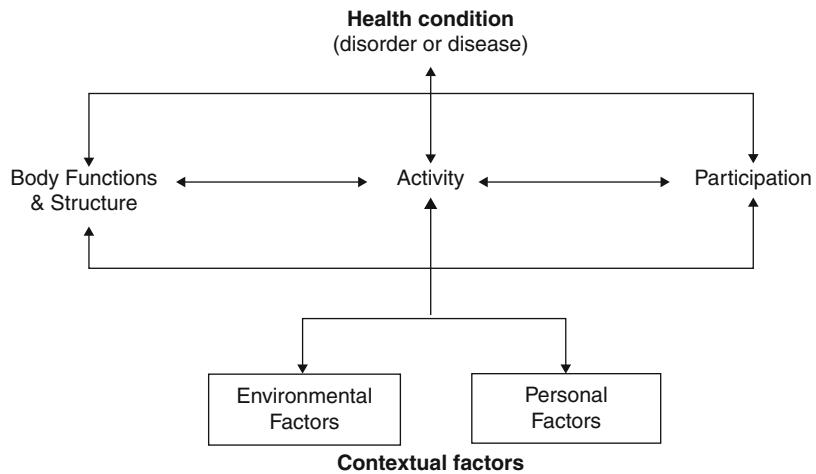
Description

The ICF organizes information on aspects of functioning, disability, and health into two parts, each with two components (WHO, 2001) (Fig. 1):

Part 1 covers functioning and disability and includes the components body functions and structure and activities and participation. Body functions and structures include physiological systems and anatomical structures, while activities and participation include the wide range of functioning ranging from individual to social and societal perspectives. Activities refer to the execution of tasks and actions, while participation is defined as involvement in life situations.

Part 2 covers contextual factors, that is, personal factors and environmental factors.

International Classification of Functioning, Fig. 1 The ICF model (1)



Personal factors comprise the particular background of an individual's life, and unlike the other components, personal factors are not outlined in detail in the classification system. The component environmental factors consist of the physical, social, and attitudinal environments in which individuals live and conduct their lives.

The ICF components (except personal factors) are classified following the principles of a four-level taxonomy, that is, they consist of several levels according to common characteristics and are ordered/numbered in a conceptually meaningful way. In total, the ICF has 1,424 categories spread across four hierarchical levels (Cieza & Stucki, 2008).

The importance of linking QOL and HRQOL to the ICF is since long well recognized (Huber et al., 2010). Illustrating the worldwide research attention to studying such linkages, a database search using the search terms "ICF and quality of life" generates approximately 200 hits. The publications thus identified demonstrate the wide range of diagnoses involved in such research, e.g., traumatic brain injury, obesity, cancer, autism spectrum disorders, HIV infection, back problems, cerebral palsy, dementia, and many more. A common approach to such studies is to use the ICF as a gold standard to assess QOL/HRQOL instruments against, in order to establish their validity, for example, outcome studies in rehabilitation (see, e.g., Teixeira-Salmela, Neto, Magalhaes, Lima, & Faria, 2009,

Andrew, Gabbe, Wolfe, & Cameron, 2010; Mayo, Moriello, Asano, van der Spuy, & Finch, 2011; Teixeira-Salmela, Neto, Magalhaes, Lima, & Faria 2009). Still, there is an ongoing debate on whether linking QOL and HRQOL to the ICF is possible in a valid and meaningful way, mostly since the ICF does not include the concept of subjective well-being. That is, there is a hitherto unresolved tension between the objective, professional assessment approach advocated in the ICF, and the need for self-reports of perceived aspects of QOL such as subjective well-being (Huber et al., 2010).

Cross-References

- [Biopsychosocial Model](#)
- [Disability](#)
- [Health](#)
- [Health-Related Quality of Life \(HRQOL\)](#)
- [Quality of Life \(QoL\)](#)
- [Subjective Well-being](#)

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International Happiness Scale Interval Study

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Synonyms

Scale conversion; Scale transformation;
Standardization of international happiness scale

Definition

A research synthesis technique, which is used to convert responses to survey questions on happiness in different languages, using different verbal response scales, into a common 0–10 numerical scale.

Description

Object

This study is about survey questions on happiness using verbal response options, such as “very happy” and “fairly happy.” The aim is to estimate what degrees of happiness are denoted by such terms as used in different questions and different languages. The degrees of happiness are expressed as numerical values on a 0–10 scale. The results are then used to compute comparable means and standard deviations. The goal is to enlarge the pool of data available for synthetic studies, in particular comparison of happiness across nations and over time.

Method

Native speakers read survey questions on happiness that had been used in their countries. For each separate question, they rate the relative value of each of the response options in their

International Comparison

► Cross-National Comparison(s)

International Comparisons of Crime Statistics

► International Agencies' Crime Statistics

International Conflict

► War

language. The native speakers do this using a computer. They are presented with a screen which shows a vertical bar scale, which they are asked to divide into sections by shifting separation lines. The possible response options with respect to happiness are presented next to the scale and move with the bars. The native speaker's task is to move the separation lines with the cursor until they feel that the intervals shown on the scale they have adjusted correspond with the degree of happiness denoted by each of the verbal response options. An example of the scale interval recorder is shown here.

Judges

Rating in this study is done by volunteer university students recruited by participating professors. The judges rate response options to maximally 10 questions, a task that takes about 10 min. Given the precision required, at least 200 respondents per language are required. To date (2012), 41 of such studies have been completed in 13 languages.

Application

The results of these studies are used to calculate new averages and standard deviations from the available responses to survey questions on happiness that used verbal response options, and the transformed values are entered in the World Database of Happiness, next to the summary statistics obtained on the original response scale (Veenhoven, 2012).

Although originally developed for improving the comparison of results of happiness studies, this technique can also be used in other research fields where heterogeneous survey data needs to be converted into more homogenous scores.

Documentation

All details about this study are on the Web at http://worlddatabaseofhappiness.eur.nl/scale_study/scale_fp.htm. This method is discussed in more detail in Veenhoven (2009) and Kalmijn et al. (2011).

Cross-References

► Rescaling

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International Literacy Assessments

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Synonyms

Assessments of prose literacy; Document literacy; Illiteracy tests; Literacy; Literate environment; Numeracy; PIAAC; Problem-solving; Problem-solving in technology-rich environments; Quantitative literacy; Reading components of literacy assessments

Definition

The comparative assessment of adult skills at the population level is a relatively new field that only emerged in the mid-1990s. It seeks to obtain valid, reliable, comparable, and interpretable measures of socially and economically important skills that can be compared across countries,

for social groups both within and between countries, to explore the determinants of observed differences in skill and their impact on the quality of life and rates of social and economic development. These studies actually test adult proficiency using a battery of authentic test items in association with an extensive background questionnaire.

Description

The end of the 1970s saw the advent of the world's first comparative assessments of adult skill at the population level. The initial studies were motivated by North American policy makers' dissatisfaction with the use of educational attainment and years of schooling as proxy measures of what workers and students knew and could do (Niece & Adset, 1992). These measures of the quantity of education were becoming less useful in predicting observed inequalities in individual life outcomes. This led to a desire to measure the quality of education more directly, through the administration of actual proficiency tests.

The International Adult Literacy Survey (IALS)

The initial international comparative assessment of adult skill was known as the International Adult Literacy Survey (IALS) that collected data in three rounds between 1994 and 1998 for 22 countries. The IALS was built on a skills model, which relied on explicit theories of item difficulty to support generalization beyond the items selected for inclusion in the test (Kirsch & Mosenthal, 1993; Mosenthal, 1998). In particular, it was built upon the theoretical and methodological insights offered by four large-scale North American surveys that embodied skill models: (1) the Functional Reading Study conducted in the United States by the Educational Testing Service in the early 1970s, (2) the Young Adult Literacy Study conducted in the United States by the Educational Testing Service in 1985, (3) the Survey of Literacy Skills Used in Daily Activities conducted in Canada by Statistics Canada in 1989, and (4) the National Adult Literacy

Survey (NALS) conducted in the United States by the Educational Testing Service in 1990 (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993; Montigny, Kelly, & Jones, 1991).

The IALS assessments were enabled by advances in four distinct domains as described below: (1) advances in theory that allows one to predict the relative difficulty of reading and numeracy tasks developed by Kirsch and Mosenthal, (2) advances in the statistical methods used to summarize proficiency measures developed for the US National Assessment of Education Progress (NAEP), (3) experience in applying educational assessment methods within the context of a household survey, and (4) the development of an elaborate quality assurance regime designed to ensure the comparability of results.

The IALS survey provided data of unprecedented quality in the domain of skills assessment. The methods applied in IALS, ALL, PIAAC, and ISRS were designed to provide empirical confirmation of validity, reliability, and comparability, and the available evidence reveals that their estimates meet or exceed all conventional tests. Moreover, proficiency, as defined and measured, has been shown to have a profound impact on a broad range of educational, economic, and social outcomes. The methods have been criticized by those who believe that the practice of literacy is socially and culturally bound. This criticism fails to recognize that skill, as measured by IALS, ALL, PIAAC, and ISRS, allows adults to transcend their context and culture, to acquire new information, and to gain a level of independence and agency that is otherwise unavailable to them.

Analysis of IALS data revealed several critical facts, including the existence of large skill differences both within and between countries, differences that were far larger than implied by differences in the level of educational attainment and the fact that skills had a marked impact on the social distribution of a broad range of individual outcomes. Adults with higher skill levels were more successful in the labor market and had better health, higher levels of social engagement, and more educational success (MacCracken & Murray, 2009).

Most importantly, analysis revealed that differences in the level and distribution of skill were the single most important determinant of differences in the rates of productivity growth and overall GDP growth. Moreover, the higher the proportion of adults functioning at Levels 1 and 2 on the proficiency scales, the lower the resulting GDP growth rates (Statistics Canada & HRSDC, 2004).

Collectively, these findings suggest that policies and programs designed to raise skill levels might simultaneously serve to improve the overall quality of life and reduce prevailing levels of social inequality in valued outcomes, particularly if they focus on reducing the proportions of low-skilled adults.

The Adult Literacy and Life Skills Survey (ALL)

The Adult Literacy and Life Skills Survey was developed to update and extend the IALS measures and to serve a range of objectives:

First, ALL sought to profile the distribution of skills in the areas of prose literacy, document literacy, numeracy, problem-solving and, for some countries, health literacy. Definitions of the skill domains assessed in ALL are set out below:

- *Prose literacy* – the knowledge and skills needed to understand and use information from texts including editorials, news stories, brochures, and instruction manuals.
- *Document literacy* – the knowledge and skills required to locate and use information contained in various formats, including job applications, payroll forms, transportation schedules, maps, tables, and charts.
- *Numeracy* – the knowledge and skills required to effectively manage the mathematical demands of diverse situations.
- *Problem-solving* – problem-solving involves goal-directed thinking and action in situations for which no routine solution procedure is available.

The numeracy and problem-solving instruments were entirely new and had been developed by expert groups funded and managed by Statistics Canada and the US National Center for Education Statistics specifically for ALL. The

ALL assessment replaced the quantitative literacy domain used in IALS with a broader and more robust numeracy measure that reflects better the range of numerate behaviors that confront adults in their daily lives.

ALL also sought to measure changes in the level and distribution of prose literacy and document literacy. A substantive effort was made to also develop measures for team work skills, practical cognition, and information and communication technology (ICT) skills, but only the problem-solving domain was shown to meet the high measurement standards set for the direct assessment of skills in ALL. An indirect measure of ICT skills was nevertheless retained in the final design of ALL. The inclusion of this indirect measure of ICT skills was a compromise because direct assessment proved too technically challenging and too costly in the context of a household survey. Another objective was to document the incidence, intensity, and distribution of participation in formal adult education and training as well as informal and nonformal learning in other settings, particularly the workplace, knowing from IALS that this has a discernible impact on literacy proficiency.

The further objective of the ALL survey was to collect empirical data about the antecedents of the skills measured, allowing for an analysis of the social and economic determinants of education and skills, including individual background characteristics. A module measuring literacy and numeracy practices at work and in daily life was included in the background questionnaire. Variables measuring frequency in reading and writing activities, frequency of using public libraries or visiting bookstores, and frequency in viewing television were also collected.

Other objectives pursued in the ALL survey were to explore the social, economic, and health consequences associated with different skill levels. To understand how skill levels in different domains interact – how they relate to each other and what impact these interactions may have on economic, labor, and social outcomes – was another objective. The “outcomes” dimension of the markets for skills could be studied at

three conceptual levels – the micro, meso, and macro. The idea was to study the consequences of having skills at particular levels for individuals, for families and workplaces, and at the macro level on the impact of skills for aggregate outcomes such as economic growth and labor productivity.

The ALL survey collected data in two rounds between 2003 and 2005. Analysis of the ALL data revealed several additional insights including evidence of significant skill loss in some subpopulations. The presence of skill loss suggests either that the economic value of skill has been overstated or for a need for measures to increase the social and economic demand for skill to ensure that the available supply is fully utilized. The presence of very large occupational literacy and numeracy skill shortages suggests that employers adapt their work processes, technology, and organization to the skill of the available workforce. This finding suggests a need for more affordable and reliable assessment and instructional tools to improve the efficiency of the labor market mechanisms that match skill supply and skill demand and for policy measures that serve to increase the level of skill demand in workplaces. Collectively, these two findings suggest the presence of a market failure of the sort that only government could remedy through measures designed to increase employers' skill investment levels.

Another objective was to document the incidence, intensity, and distribution of participation in formal adult education and training as well as informal and nonformal learning in other settings, particularly the workplace, knowing from IALS that this has a discernible impact on literacy proficiency. The further objective of the ALL survey was to collect empirical data about the antecedents of the skills measured, allowing for an analysis of the social and economic determinants of education and skills, including individual background characteristics.

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activities, frequency of using public libraries or visiting bookstores, and frequency in viewing television were also collected.

Figure 1 shows the countries participating in IALS and ALL.

The International Survey of Reading Skills (ISRS)

The International Study of Reading Skills (ISRS) was a joint Canada/US study designed to describe in depth the reading abilities of the least-skilled adult readers in society and to identify the basic reading profiles of these adults, based on their strengths and needs in reading. The goal is to supply policy makers, researchers, and practitioners with new information useful for making decisions about how to plan and deliver appropriate and efficient reading instruction for different adult learners. The ISRS data set has been used to inform the development of better diagnostic systems for low-skilled adults, to tailor the content and modalities of instruction to their needs, and to create improved strategies to encourage active participation by adult learners.

Analysis of ISRS data reveals the presence of 6 distinct types of learners, each characterized by a common pattern of strength and weakness in their reading components (letter recognition, receptive vocabulary, working memory, phonetic decoding speed and accuracy, oral fluency) and by extension of their learning needs (Canadian Council for Learning [CCL], 2008; DataAngel, 2009; Statistics Canada & HRSDC, 2008).

The OECD's Program for the Assessment of Adult Competencies (PIAAC)

The Organization for Economic Cooperation and Development (OECD) PIAAC program was developed to refine and extend the IALS and ALL assessment programs while institutionalizing implementation in an international organization.

PIAAC combines the IALS prose and document scales into a single reading measure, replicates the ALL numeracy measure, includes a variant of the ISRS reading component measures, and introduces a problem-solving

International Literacy Assessments

Fig. 1 Countries participating in IALS and ALL

IALS and ALL participating countries	
IALS 1994 to 1995	IALS 1996
<ul style="list-style-type: none"> • Canada • Germany • Ireland • The Netherlands • Poland • Sweden • Switzerland • United States 	<ul style="list-style-type: none"> • Australia • The Flemish community of Belgium • Great Britain • New Zealand • Northern Ireland
IALS 1998	ALL 2003
<ul style="list-style-type: none"> • Chile • Czech Republic • Denmark • Finland • Hungary • Italy • Norway • Portugal • Slovenia 	<ul style="list-style-type: none"> • Bermuda • Canada • Italy • Norway • Nuevo Leon (Northern of Mexico) • Switzerland • United States
ALL 2006 to 2008	ALL 2006 to 2008
	<ul style="list-style-type: none"> • Australia • Hungary • New Zealand • The Netherlands

measure in technology-rich environments. The background questionnaire also includes a novel measure of occupational skill demand called the Job Requirements Analysis.

Figure 2 illustrates how content has evolved from IALS to PIAAC.

PIAAC is undertaking a first round of data collection in 2012 and a second in 2013 with some 43 countries.

Discussion

Analysis of IALS, ALL, ISRS, and, prospectively, LAMP (Literacy Assessment and Monitoring Programme) and PIAAC data has transformed how policy makers think about skills. The most important insight is that there is a need for policy to pay more attention to both skill demand and to the efficiency of the markets that match skill supply and demand. Simply investing in the production of new skill supply is not sufficient. A failure to manage demand and market efficiency can result in skill loss, lower than expected economic growth and social progress and a lower than expected return on educational investments. The

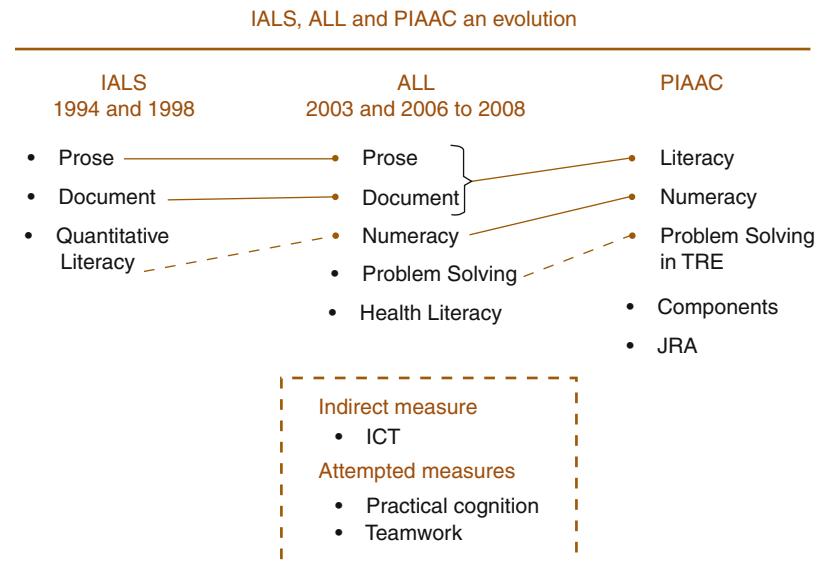
demographic structure of OECD populations and the rate at which changes in global markets are amplifying the relative importance of skill to economic performance and competitiveness suggest that improving the quality of educational output is not sufficient, thus requiring larger investments in raising adult skills.

As noted above, the conduct of IALS, ALL, ISRS, and PIAAC has demonstrated that the methods exist to assess skill across language and culture in a valid, reliable, comparable, and interpretable way. The same experience suggests that controlling response and nonresponse errors requires the execution of an extensive regime of quality assurance and the application of advanced statistical techniques to quantify and correct for error and bias.

The availability of the ISRS data for multiple countries shows that the mechanics of reading that underpin the emergence of fluid and automatic reading (defined by Level 3 on the IALS scales) is indeed language specific. The IALS methods place people accurately on the overall proficiency scale, but for people in Levels 1 and 2, the reason

International Literacy Assessments,

Fig. 2 How content has evolved from IALS through PIAAC



that they are where they are on the scale will depend on the language. At Level 3 an above proficiency depends on cognitive strategies that appear to be universal.

Research with adults reveals that they solve problems in a number of ways including by relying on their practical and crystallized intelligences. Only skill, as defined by IALS, increases the probability and efficiency of adults being fluid and creative problem solvers. It is this ability, of helping adults transcend what they know and to cope with the unfamiliar, that renders skill so important to individual quality of life and life chances.

Cross-References

- [Inequality](#)
- [Literacy](#)
- [PIAAC](#)

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International Literacy Measures

► PIAAC (Latest Survey on Literacy)

International Society for Quality of Life Research (ISOQOL)

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Activities/Major Accomplishments/ Contributions

The International Society for Quality of Life Research (ISOQOL) is dedicated to advancing the scientific study of health-related quality of life (HRQOL) and other patient-centered outcomes to identify effective interventions, enhance the quality of health care, and promote the health of populations. It carries out its mission primarily through the sponsorship of scientific conferences, its journal *Quality of Life Research*, educational webinars, and its special interest groups. Since its beginning in 1993, ISOQOL has been an international collaborative network including researchers, clinicians, patient advocates, government scientists, industry representatives, and policy makers who have unique perspectives and interests in HRQOL research. The backbone of ISOQOL is its methodologists who concentrate on using qualitative and quantitative methods to improve the measurement and application of

patient-reported data in research, healthcare delivery, and population surveillance.

Each year, ISOQOL brings together these multidisciplinary perspectives for an international conference that highlights critical research areas to advance our understanding of HRQOL. It also holds additional scientific meetings focused on specific topics. To date, the topics have included the use of patient-reported outcomes in clinical practice and a review of the U.S. Food and Drug Administration (FDA) guidance on patient-reported outcomes for drug labeling.

The *Quality of Life Research* journal is the official journal of ISOQOL and it is internationally recognized for its excellence in publishing high quality scientific articles on HRQOL. Its impact continues to rise as the research field has gained prominence due to the critical need, for example, for real-time HRQOL data capture and reporting in electronic medical records, a growing understanding of the link between genetics and HRQOL, and the recent emergence of patient-centered comparative effectiveness research. This body of work informs clinicians, researchers, patients, and policy makers on the safety and effectiveness of interventions in terms of morbidity, mortality, and quality of life.

To stimulate these important HRQOL research areas, the ISOQOL has established Special Interest Groups (SIGs) including: Psychometrics, Child Health, HRQOL in Clinical Practice, Response Shift, Patient Engagement, Translation and Cultural Adaptations, and a New Investigators SIG designed to facilitate the growth of knowledge and interests of our newer generation of researchers. ISOQOL has held conferences at cities in the United States, Canada, and Europe as well as Asia and South America. ISOQOL has also expanded its outreach to include ISOQOL SIGs in specific regions of Latin America, Russia, The Netherlands, and Asia. More SIGs will soon follow.

ISOQOL has also expanded its educational outreach by hosting webinars focused on specific HRQOL topics. Past webinars are available for viewing through the ISOQOL website and include topics of: Using Patient-Reported Outcome Measures to Improve Clinical Practice;

and Incorporating Patient-Reported Outcomes into Comparative Effectiveness Research. ISOQOL has also published guidance documents on both these topics and more.

To learn more about ISOQOL and to become a member, please visit our website: <http://www.isoqol.org>

Cross-References

- ▶ [Health-Related Quality of Life Measures](#)
- ▶ [Quality Adjusted Life Years \(QALY\)](#)
- ▶ [Quality of Life](#)
- ▶ [Quality of Life Index](#)
- ▶ [Quality of Life Outcomes](#)
- ▶ [Quality of Life Questionnaire](#)
- ▶ [Quality of Life Research](#)

References

<http://www.isoqol.org>

International Socioeconomic Index (ISEI)

- ▶ [Social Inequalities](#)

International Sociological Association Working Group/Research Committee on Social Indicators

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Brief History

The Working Group “Social Indicators” (WG06) of the International Sociological Association

(ISA) was officially established in 1988. Although the status of a working group had been considered transitional from the beginning, and despite severe efforts and several applications, it took 20 years to achieve the current status of a Research Committee “Social Indicators” (RC55), which was awarded by the ISA in 2008. According to the statutes of RC55 “the primary purpose of the research committee is to advance research and scholarly communication in the field of social indicators in a broad sense” (see www.isa-sociology.org/rc55.htm) as it was for the former working group. The general theme of “social indicators in a broad sense” covers not only issues of measuring and monitoring individual and societal well-being, but also all sorts of quantitative research in the field of living conditions and quality of life.

The approval of the WG06 by the ISA officials in 1988 was the result of various preceding activities over at least a decade. Although the so-called social indicators movement had its origin in the 1960s already and attracted much interest in the social sciences as well as in the policy making fields during the 1970s not only in the USA and Europe (Land, 2000; Noll, 2004; Noll & Zapf, 1994; Sirgy et al., 2006) but also other parts of the world, the specific efforts and activities resulting in the formation of a working group on social indicators, that is, activities, which in some way were related to the ISA, can be traced back to the mid-1970s according to our inquiries. A report on the VIIIth ISA World Congress, which took place at Toronto in August 1974 mentions that several new themes were addressed, among them “the construction of social indicators” and “quality of life” (Lipp, 1974, p. 413). The program of this congress includes a Round Table on “Quality of Life,” chaired by Jindrich Filipec (Czechoslovakia). Hans Peter Dreitzel (Germany) is mentioned as a “rapporteur.” Seven out of the 11 panelists were of Eastern European provenance. The program mentions David L. Wright and Frank M. Andrews (USA) and P.K.B. Nayar (India) as discussants. In a different session titled “Programs and computers in sociology: application to social and cultural indicators,” the social

indicators theme was addressed from a more technical point of view.

The IXth World Congress of Sociology, which took place in Uppsala (Sweden) in 1978, saw at least one symposium on “social indicators” organized by Alexander Szalai (Hungary) and Frank Andrews (USA). A collection of articles based on papers presented in this symposium was published in the book *The Quality of Life – Comparative Studies* edited by Szalai and Andrews (1980). Altogether 15 articles are allocated to three thematic sections: (1) Empirical and methodological results, (2) Conceptual and methodological proposals, (3) Development of large integrated systems for life quality assessment. The two editors added a prologue and an epilogue. The list of authors includes scholars as prominent as Tom Atkinson, Norman Bradburn, Igor V. Bestuzhev-Lada, Robert Dubin, Elemér Hankiss, Alex Inkeles, and Wolfgang Zapf. Alex Michalos had been invited to the same congress to give a talk about “Social Indicators Research” as part of a session on “Editing Social Science Journals” (organized by Irving L. Horowitz, USA), where he discussed the birth and the development of this rather new international journal, whose first issue was published in May 1974 (Michalos, 2005).

By invitation of the American sociologist Ralph Turner, the then Vice President Programs of the ISA, Rudolf Andorka (Hungary) had organized a symposium on “Problems of Social Indicators: Their Role in Social Development” for the Xth ISA World Congress, taking place at Mexico City in August 1982. In his introduction to a special issue of Social Indicators Research, Andorka (1984, p. 227) wrote: “there is considerable interest among sociologists all over the world in questions related to the construction of social indicator systems that can be used to measure social conditions and changes.” In consequence, a similar symposium (to the one in Uppsala 4 years earlier) consisting of two sessions was included in the program of the Xth World Congress in Mexico City in 1982, on “Problems of social indicators: their role in social development.” The first of the two sessions,

chaired by Alex Michalos, had the title “The sociological theoretical background of social indicators. The concepts of the level of living, welfare, well-being, quality of life, satisfaction and happiness. Methodological problems, regional indicators”. The second session, chaired by Rudolf Andorka, was titled “Social indicators as tools to monitor social change. The use of social indicators in planning, in social science and in the information of the public.” The majority of the presenters in these sessions were scholars from Eastern European – the then Socialist – countries, such as Bulgaria, Czechoslovakia, Hungary, Poland, and the USSR, which may partly be due to the provenance of the organizer of the symposium, but may also document a special interest concerning social indicators research arising in the Socialist countries in this particular period of time. During the same World congress, Wolfgang Zapf – a pioneer and doyen of social indicators research in Germany – had organized a symposium on “Welfare Production: Theory, Measurement and Policy,” a topic closely related to social indicators research. Selected papers from the sessions organized by Andorka and Zapf were published in *Social Indicators Research* Vol. 14 (1984), No. 3, edited by Andorka as a guest editor. He concludes his introduction to this issue by saying that “at the end of the meeting, it was generally considered that sociologists working on social indicators ought to have more opportunities for the mutual exchange of ideas and experiences, perhaps in the form of a continuous Working Group of the International Sociological Association” (Andorka, 1984, p. 233).

In collaboration with Alex Michalos, Rudolf Andorka also appears to be the organizer of five sessions on social indicators for the XIth ISA World congress in New Delhi, 1986. The five sessions addressed the following themes: (1) Social reporting in Europe and North America, (2) Social reporting in Asia, Africa, and Australia, (3) Indicators from surveys, (4) Social indicator systems, and (5) Quality of life measures. As an outcome of the deliberations during the New Delhi social indicator sessions, “a

movement was initiated by petition to make the ad hoc group on Social Indicators a regular section of the International Sociological Association” (see SINET, no. 7, p. 2), which – according to the ISA statutes – meant a Working Group in the first place.

In 1988, the persistent activities to provide researchers in the field of social indicators with an organizational framework at the international level – driven by the two main proponents Andorka and Michalos – resulted finally in the successful approval of Working Group 06 “Social Indicators” by the officials of the International Sociological Association. In the summer of the same year (August 22–27), a first “mid-term conference” of the novel Working Group 06 took place at the former “Karl Marx University” (University of Economic Sciences) at Budapest, organized by Rudolf Andorka, who held a chair in sociology at this university. Unfortunately, co-organizer Alex Michalos was unable to attend this meeting owing to his running in the Canadian parliamentary elections. This first and rather informal 3-day meeting of the Working Group was attended by a relatively small group of researchers (the call for papers, published in SINET no. 12, p. 5, mentioned that “only a limited number can be accommodated at the conference site”) from Western and Eastern Europe as well as countries outside Europe. The papers presented addressed subjects such as subjective social indicators, national reporting systems, a project on comparative charting of social change, labor market trends, and the long-term development of living conditions, and participants discussed the situation of social indicators research in Eastern and Western nations, as Noll wrote in his conference report (SINET, no. 17, p. 4).

In a business meeting held during this conference, it was decided that the Working Group should participate in the forthcoming ISA World Congress in Madrid with a view to organize a track of sessions addressing different themes related to social indicators and quality of life research. Alex Michalos and Rudolf Andorka assumed the positions of chair and cochair of the

new Working Group and Heinz-Herbert Noll, who in 1987 had been appointed as director of a newly established “Social Indicators Research Centre” attached to the Centre for Survey Research and Methodology (ZUMA) in Mannheim (Germany), was named secretary of WG06 until elections were to be held during the 1990 World Congress.

Activities/Major Accomplishments/ Contributions

During the XIIth ISA World Congress at Madrid in 1990, the newly established WG06 “Social Indicators” appeared for the first time in the official program of the ISA congress. The track on social indicators covered nine paper sessions and a business meeting. Program chairs were once more Alex Michalos and Rudolf Andorka. The themes addressed by the nine paper sessions were: (1) Social Reporting, Development and Cross Cultural Analysis; (2) Political Sophistication, Community Decay and Material Well-Being; (3) Subjective Well-Being and Time Use; (4) Long- and Short-Term Affect, Happiness and Helpfulness; (5) Adjustive Behavior and Interpersonal Relations; (6) Living Conditions and Life Goals; (7) Social Trends and Inequality; (8) Poverty and Well-Being; and (9) Lifestyles and Social Monitoring. The elections held during the business meeting confirmed Michalos and Andorka as chair and cochair of the Working Group and Noll as secretary.

In the following years up to the present Working Group 06 and RC 55, “Social Indicators” organized tracks of sessions for each of the ISA World Congresses and moreover also regularly convened so-called mid-term conferences in between the World Congresses as required by the ISA. Summary information on respective activities and events is presented in the following in chronological order from 1992 to 2010 and – in anticipation – 2012:

- The second WG06 mid-term conference was organized as a joint conference with ISA Research Committee 26 “Sociotechnics-

Sociological Practice” at Erasmus University Rotterdam in June 1992. This joint conference addressed the theme “The Good Society: Applications of the Social Sciences,” and Ruut Veenhoven (Erasmus University, Rotterdam) acted as a co-organizer and host on behalf of WG06. A report on this conference was published in SINET, no. 34.

- During the XIIIth ISA World Congress at Bielefeld in 1994, WG06 arranged nine paper sessions and a business meeting (program coordinator: Alex Michalos, University of Guelph). The nine sessions addressed the overall theme “Societal Development and Perceived Quality of Life” (for a report, see SINET no. 39).
- A third mid-term conference on “Social Indicators, Quality of Life and Social Reporting” was organized by Alex Michalos (University of Northern British Columbia) as a joint conference of WG06 and the recently established International Society for Quality Of Life Studies (ISQOLS), taking place at the University of British Columbia, Prince George, Canada, in August 1996.
- For the XIVth ISA World Congress at Montreal in 1998, WG06 arranged a track of ten paper sessions and a business meeting. Program coordinators were K. Victor Ujimoto (University of Guelph) and Merlin Brinkerhoff (University of Calgary). One of the sessions (Perspectives on Social Indicators) had been organized to pay tribute to Rudolf Andorka, who had passed away on June 30, 1997.
- The fourth mid-term conference addressing the theme “Rich and Poor” took place in Berlin in 2000 and was organized by Wolfgang Glatzer (Goethe University) as program chair on behalf of WG06 in collaboration with the former department “Social Structure and Social Reporting” of the Social Science Research Centre (WZB) headed by Wolfgang Zapf. Selected papers from this mid-term conference were published in a volume edited by Glatzer (2002).
- At the XVth ISA World Congress at Brisbane in 2002, WG06 held three paper sessions and

a business meeting. Bob Cummins (Deakin University) acted as program coordinator.

- For the XVIth ISA World Congress at Durban in 2006, WG06 had organized a track of five paper session as well as a business meeting. Valerie Moller (Rhodes University) acted as program coordinator.
- In 2008, WG06 participated in the first ISA Forum, taking place in Barcelona. The newly introduced ISA Forums are supposed to be organized every 4 years between ISA World Congresses and shall provide opportunities for ISA Research Committees and Working Groups to hold their mid-term conferences under a common organizational framework. For the first ISA Forum at Barcelona, WG 06 had arranged a full program of seven sessions (plus business meeting), covering more than 40 paper presentations. The program coordinator was Heinz-Herbert Noll (GESIS – Leibniz Institute for the Social Sciences). In a meeting of the ISA Research Council, the upgrade of the former WG06 “Social Indicators” to the current Research Committee 55 “Social Indicators” was officially approved.
- During the XVIth ISA World Congress at Gothenburg in 2010, sessions on social indicators were for the first time held under the auspices of the Research Committee 55 “Social Indicators.” Heinz-Herbert Noll – the then RC55 president and program coordinator – had organized seven paper sessions and a business meeting on behalf of RC55. In addition to the seven RC 55 sessions, the program also covered for the first time 5 sessions, which were jointly organized in collaboration with other Research Committees (RC 11 “Sociology of Aging,” RC 24 “Environment and Society,” RC 53 “Sociology of Childhood”).
- RC55 currently organizes its participation in the forthcoming second ISA Forum (program coordinator: Mariano Rojas, Facultad Latinoamericana des Ciences Sociales, Mexico), which will take place at Buenos Aires in 2012. The 12 proposed sessions include a joint session with RC31 “migration” and a business meeting.

Membership

According to a report in SINET (no. 29, p. 9), the former WG06 had some 80 members in the early 1990s. The number of members increased to ca. 130 in 2006. After introducing new membership regulations (ISA membership dues as well as WG06 membership dues paid) and making membership dues for WGs and RCs compulsory by the ISA, the number of members in “good standing” collapsed considerably, but increased again continuously to ca. 100 in 2010 (according to communication from ISA Secretariat).

Newsletter

The official newsletter of the former WG06 and current RC55 is “Social Indicators Network News” (SINET), a quarterly newsletter and service to the worldwide social indicators community. SINET appeared since 1984 and became the newsletter of WG06 in 1994. SINET was edited by Abbott L. Ferriss (Emory University, Atlanta) from 1984 to 1995 and is being edited by Kenneth Land (Duke University, Durham) from 1995 to the present.

Composition of boards

Board 1990–1994

Chair	Alex MICHALOS, Canada
Cochair	Rudolf ANDORKA, Hungary
Secretary	Heinz-Herbert NOLL, Germany

Board 1994–1998

President	Alex MICHALOS, Canada
Vice president	Rudolf ANDORKA, Hungary (deceased in 1997)
Secretary	Heinz-Herbert NOLL, Germany
Newsletter editor	Abbott L. FERRISS, USA (1994–1995) Kenneth C. LAND, USA (1996–1998)

Board 1998–2002

President	Wolfgang GLATZER, Germany
Vice president	Kenneth C. LAND, USA
Treasurer	Ruut VEENHOVEN, The Netherlands
Board members	Bruce HEADEY, Australia Thorbjørn MOUM, Norway Ramkrishna MUKHERJEE, India Heinz Herbert NOLL, Germany Joachim VOGEL, Sweden

(continued)

Composition of boards	
Newsletter editor	Kenneth C. LAND, USA
Board 2002–2006	
President	Kenneth LAND, USA
Vice president	Heinz-Herbert NOLL, Germany
Secretary	Ruut VEENHOVEN, The Netherlands
Board members	Liz ECKERMAN, Australia Wolfgang GLATZER, Germany Anna LAU, Hong Kong Alex MICHALOS, Canada Joachim VOGEL, Sweden
Newsletter editor	Kenneth C. LAND, USA
Board 2006–2010	
President	Heinz-Herbert NOLL, Germany
President elect	Ruut VEENHOVEN, The Netherlands
Secretary	Liz ECKERMAN, Australia
Board members	Mahar MANGAHAS, Philippines Valerie MOLLER, South Africa Christian SUTER, Switzerland Ming-Chang TSAI, Taiwan
Newsletter editor	Kenneth C. LAND, USA
Board 2010–2014	
President	Ruut VEENHOVEN, The Netherlands
Vice president	Ming-Chang TSAI, Taiwan
Secretary	Christian SUTER, Switzerland
Board members	Robert BIJL, The Netherlands Filomena MAGGINO, Italy Krishna MAZUMDAR, India Heinz-Herbert NOLL, Germany Mariano ROJAS, Mexico
Newsletter editor	Kenneth C. LAND, USA

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International Standard Classification of Occupations (ISCO)

► Social Inequalities

International Well-being Group

- Australia, Personal Well-Being Index
- Ethnic Tibetans: Application of the Personal Well-being Index (PWI)
- Israel, Personal Well-Being Index; Application to Different Population Group
- Adolescents in Spain, Application of the Personal Well-being Index (PWI)
- Gifted American College Students, Application of the Personal Well-being Index (PWI) (Adult Version)

International Well-Being Index

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Synonyms

Happiness; National subjective well-being;
Quality of life, subjective

Definition

Since November 2001, the International Well-being Group (IWG) has been slowly assembling. The aim of this collaborative network is to develop the Personal Well-being Index (International Wellbeing Group [IWG], 2006) as a cross-culturally valid measure of population subjective well-being (SWB). The origin of this group lies in the earlier establishment of the Australian Unity Wellbeing Index.

Description

Australian Unity Well-Being Index

The Australian Unity Well-being Index (AUWI) commenced in 2000 as a new barometer of Australians' satisfaction with their lives and life in ► Australia. Unlike the official indicators of quality of life and well-being in Australia at that time, it is subjective – it measures how Australians feel about life – and incorporates both personal and national perspectives. It is, thus, an adjunctive measure of population well-being to such economic indicators as gross domestic product and other objective indicators such as population health, ► literacy, and ► crime statistics. It measures ► quality of life as experienced by the average Australian and it is reported on a quarterly basis.

The index comprises two major numbers. The PWI measures ► subjective well-being as the average level of satisfaction across eight aspects of personal life – ► health, personal relationships, safety, standard of living, achieving in life, community connectedness, future security, and religion/spirituality. The eighth domain of religious/spiritual satisfaction was added to the scale in 2006 by the IWG, which has ownership of this scale. The decision was based on empirical evidence that the domain met the criteria of a new domain (Wills, 2009).

One of these criteria derives from the intended construction of the PWI as representing the first-level deconstruction of "Satisfaction with life as a whole" (General Life satisfaction, GLS) such that each domain is required to contribute

unique variance when the full domain set is regressed on GLS. When used together, the domains account for about 52 % of the variance in life as a whole, so the search for new domains that are capable of adding to this explained variance continues. The domain of religion/spirituality was shown to fulfill this criterion in some countries and so was added to the scale. The PWI is intended to evolve.

The National Well-being Index has been similarly conceived. Six domains represent the first-level deconstruction of "Satisfaction with life in Australia." The domains are the economy, the environment, social conditions, governance, business, and national security. Here the domains are less powerful in representing the broader construct, together explaining about 25 % of the variance in life in Australia (Cummins, Eckersley, Pallant, Van Vugt, & Misajon, 2003).

The first AUWI survey, of 2,000 adults from all parts of Australia, was conducted in April 2001. By October 2011, a total of 26 such surveys had been conducted. Copies of all reports, raw data files, and code books are available free of charge from the Australian Centre on Quality of Life website at Deakin University <http://www.deakin.edu.au/research/acqol/auwbi/survey-reports/>.

Each survey involves the same core index questions, forming the Personal and the National Well-being Index. Each survey also includes standard demographic questions and a small number of additional items that change from one survey to the next. These explore specific issues of interest, either personal or national. Such data have several purposes. They allow validation of the index through the examination of new population subgroups and permit further exploration of the well-being construct.

The Survey Methodology

Each survey involves a geographically representative national sample of people aged 18 years or over and fluent in English. People are identified through randomly drawn telephone numbers and a new set of numbers is used for each survey.

Surveys are conducted by telephone over a 3–4-week period of data collection.

Interviewers ask to speak to the person in the house who had the most recent birthday and is at least 18 years old. Typically, a total of around 5,000 calls connected with an eligible respondent and 2,000 agree to complete the survey. This gives an effective response rate (completes/refusals and completes) of about 40 %. This low response rate reflects, in part, the methodological constraint that an even geographic and gender split is maintained at all times through the survey. This is our insurance against disruption due to major events occurring mid-survey. Thus, willing respondents who are not of the required gender have to be refused in order to maintain the overall balance. The approximately 30 questions that form each interview take about 7 min to administer.

The final question in each interview enquires whether the respondent would like to participate in an ongoing study. If they agree, they are sent a longer 90-item written questionnaire and become part of our longitudinal study. The people who return this questionnaire are then followed up annually. We currently have around 4,000 people involved in this aspect of the study.

Understanding Personal Well-Being

Respondents rate their degree of satisfaction on a 0–10 scale. All results are then adjusted to have a range of 0–100 and it is now well established (Cummins, 1995, 1998, 2003) that for Western nations, the average value for population samples is about 75 points, with a normal range from 70 to 80 points. We find that the Personal Well-being Index predictably falls within this range. However, satisfaction with aspects of national life is normally lower, falling in the range 55–65 points in Australia. The survey reports also carry the cumulative psychometric data in an appendix.

The estimated range of 70–80 points for subjective well-being was originally calculated by grouping survey means reported in the literature. Even though a 10-point range seems to indicate quite high predictability, these values had been derived from diverse surveys conducted by different researchers, in a number of countries, and using different methodologies. If all of these factors could be held constant, how stable would

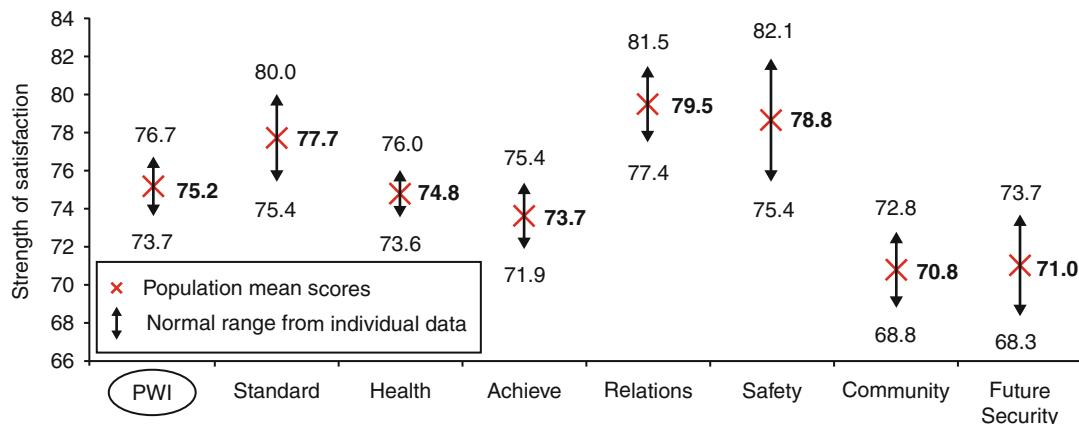
the subjective well-being of populations appear to be? The answer, derived from our 26 surveys to date, is a range from 73.6 to 76.7, a fluctuation of only 3.0 % points despite major international events.

We hypothesize that personal well-being is not simply free to vary over the theoretical 0–100 range. Rather, it is held fairly constant for each individual in a manner analogous to blood pressure or body temperature. This implies an active management system that has the task of maintaining well-being, which averages about 75 points, within a fairly tight set-point range for each individual. We call this process Subjective Well-being Homeostasis (for a description, see Cummins, Gullone, & Lau, 2002; Cummins, 2010).

The proper functioning of this homeostatic system is essential to life. At normal levels of well-being, people feel good about themselves, are well motivated to conduct their lives, and have a strong sense of ► optimism. When this homeostatic system fails, however, these essential qualities are severely compromised, and people are at risk of depression. This can come about through such circumstances as exposure to chronic ► stress, chronic pain, and failed personal relationships.

Having said this, the homeostatic system is remarkably robust. Many people live in difficult personal circumstances that may involve low income or medical problems and yet manage to maintain normal levels of well-being. This is why the index is so stable when averaged across the population. But as with any human attribute, some homeostatic systems are more robust than others. Or, put around the other way, some people have fragile systems that are prone to failure.

Homeostatic fragility, in these terms, can be caused by two different influences. The first is genetic. Some people have a constitutional weakness in their ability to maintain well-being within the normal range. The second influence is the experience of life. Here, as has been mentioned, some experiences such as chronic stress can challenge homeostasis. Other influences, such as intimate personal relationships, can strengthen homeostasis by acting as buffers.



International Well-Being Index, Fig. 1 Normative range for group data: *personal well-being* mean scores ($N = 26$)

In summary, personal well-being is under active management and most people are able to maintain normal levels of well-being even when challenged by negative life experiences. A minority of people, however, have weaker homeostatic systems as a result of either constitutional or experiential influences. These people are vulnerable to their environment and constitute various population subgroups. The identification of these subgroups, through comparison against normative data, is an important feature of our survey analyses.

The Determination of Index Norms

One advantage of these multiple-survey data is that we can produce reliable ► norms for the Australia population. On an individual basis, this can be calculated from the average mean (75.02 %) and standard deviation (12.33 %) across the 26 surveys. Two standard deviations on either side of the mean yields a normal range of 99.68–50.36 %. In other words, the normative range for individuals lies within the positive half of the 0–100 range.

A second kind of normative distribution can be calculated for groups instead of individuals. Here the survey mean scores are used as data ($N = 26$) and the resultant normal ranges are shown in Fig. 1.

Since these ranges are based on the use of survey mean scores as data, they reflect the degree of variability in each measure from one

survey to the next. As can be seen from Fig. 1, the ranges of the PWI and its constituent domains show modest variation, with a 13.8 % difference between the top of the highest range (safety: 82.1) to the bottom of the lowest range (future security: 68.3). The ranges also differ in magnitude, from the largest (safety: 6.7 points) to the smallest (health: 2.4 points). These ranges are used to judge whether the domain scores produced by the population subgroups lie above or below the normal range. Of particular importance in this regard are the values for the Personal Well-being Index. The overall mean (75.2) is remarkably close to the predicted mean for Western populations (75.0). Moreover, the range of 73.7–76.7 points is the most accurate estimate of the true range of population values yet published using consistent methodology between the surveys. It is quite remarkable to be able to predict the population mean score on subjective well-being with 95 % confidence to within 3.0 % points.

The International Well-Being Group

As at October 2011, the International Well-being Group involved over 140 researchers from over 50 countries and provinces. The group comprises three kinds of members. There are primary researchers who have the aim of generating normative population data in their own country. There are project researchers, who are using the scale for some specific purpose. And there are expert discussants, who share all correspondence

and also advise on the development of the instrument. A description of the membership is available from <http://www.deakin.edu.au/research/acqol/iwbg/members/>.

The organizational model is that researchers in each country functions autonomously to obtain local funding in whatever way they can. Their objective is to generate data that will inform the group about the performance of the index in the researcher's cultural setting. It is therefore important that, to whatever extent possible, all members employ the most recent agreed version of the Personal Well-being Index.

Two other regular national population surveys using the index are underway. The first is for Algeria and can be accessed by e-mailing Professor Habib Tiliouine (htiliouine@yahoo.fr). The second is for Macau, and their first six reports, produced in 2007 and 2009, are available from http://www.usj.edu.mo/?content_left&col=3&id71.

The PWI has been translated into over 20 languages <http://www.deakin.edu.au/research/acqol/auwbi/index-translations/> and over 140 publications using the PWI have been produced by the members <http://www.deakin.edu.au/research/acqol/iwbg/>.

Group members envisage that the index will undergo controlled evolution as theory and empirical data are brought to bear on its performance. To this end, there is an active e-forum that discusses the composition of the index as data are progressively collected and analyzed. Outside Australia, the instrument is called the International Well-being Index. If you are planning to use the index, we invite you to join the group as a project researcher. You may also consider joining the symposium we always run at the ► **International Society for Quality of Life Studies** international conference.

Cross-References

- [Algeria, Personal Well-Being Index](#)
- [Algerian Secondary School Students, Application of the Personal Well-being Index \(PWI\)](#)

- [Australia, Personal Well-Being Index](#)
- [Croatia, Personal Well-Being Index](#)
- [Ethnic Tibetans: Application of the Personal Well-being Index \(PWI\)](#)
- [Gifted American College Students, Application of the Personal Well-being Index \(PWI\) \(Adult Version\)](#)
- [Israel, Personal Well-Being Index; Application to Different Population Group](#)
- [Personal Well-Being Index from Five Capital Cities in Mainland China](#)
- [Personal Well-Being Index in Mainland China](#)
- [Personal Well-Being Index in New Zealand](#)
- [Personal Well-being Index: Preschool Children](#)
- [Personal Well-being Index: School Children](#)
- [Spain, Personal Well-Being Index; Application with People Aged 50 Years and Older](#)
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Diener, 1984; Prenshaw, 1994). This article reviews, from an objective perspective, how and in what way the use of Internet can affect people's evaluation of life quality in three domains: social interaction, information seeking, and leisure among Internet users.

Internet and Life Satisfaction

► Internet and Quality of Life

Internet and Quality of Life

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Synonyms

ICTs and quality of life; Internet and life satisfaction

Definition

According to Diener (1984), Quality of life (QoL) is defined by combining two constructs: subjective perspectives and objective perspectives. The subjective construct means that perceived quality of life is affected by personality and psychological traits, such as optimism, pessimism, isolation, loneliness, self-esteem, and neuroticism, while the objective construct hypothesizes that life quality is affected by environmental or situational factors, like family, neighborhood, leisure, community, and standard of living (Andrews & Withey, 1976; Diener, 1984). Satisfaction or dissatisfaction with standard of living is likely to spill over and influence subjective well-being. Therefore, the greater the satisfaction with one's standard of living, the greater the satisfaction with life, and vice versa. Here, standard of living is usually meant as "being materially better off" than a typical family (Andrews & Withey, 1976;

Description

Technologies and innovations play vital roles in changing the standard of living (McPheat, 1996). In particular, the introduction of household technologies such as television, refrigerators, air-conditioners, vacuum cleaners, and clothes dryers, has directly influenced the quality of material life. Similarly, office technologies, such as telephones, fax machines, e-mails, photocopiers, and word processors have been taken for granted and permanently embedded in our lives. Information and communication technologies (ICTs) are so fundamental to society that new media forms, such as the Internet, have the ability to greatly reshape our work, leisure, lifestyle, and social relationships (Leung, 2004, 2011; Wei & Leung, 1998). As the Internet continues to expand its technological capabilities and global penetration, one of the most pressing questions is: Does the Internet have a positive or negative effect on life quality?

Quality of Life (QoL) Assessment

The most frequently adopted scale for measuring quality of life is the Satisfaction with Life Scale (SWLS) developed by Diener, Emmons, Larsen, and Griffin (1985). With good internal consistency and high reliability, the SWLS is narrowly focused to assess global life satisfaction (Leung, 2010). On a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree, respondents are asked to describe their perceived life quality in the following five respects: (1) in most ways my life is close to my ideal, (2) the conditions of my life are excellent, (3) I am satisfied with my life, (4) so far I have gotten the important things I want in life, and (5) if I could live my life over, I would change almost nothing.

Past Research of Internet and Quality of Life

A review of the literature on the links between the Internet and quality of life worldwide shows findings that are generally positive. In a study examining the impact on how people communicate and quality of life assessments in the USA, Jeffres, Neuendorf, Bracken, and Atkin (2008) found that more cosmopolitan people, those with more diverse interests, those with stronger patterns of media use, and those with higher levels of community knowledge, hold stronger assessments of the quality of life available in their community. A study in Germany compared the adoption of information technology in the home over seven decades and found that there was a positive relationship between information technology and quality of life (Mundlorf, 1994). In a six-country study in the EU Fifth Framework project, investigators found variations on the impact of the Internet (Raban, Soffer, Mihnev, & Ganev, 2002). They found that perceived quality of life was somewhat higher for Internet users in the UK, Israel, and Bulgaria but was similar for both Internet users and nonusers in Italy and Norway.

In Japan, Kanayama (2003) explored the online experience of elderly people and found that text-based communication is not media poor but is actually quite rich. For them, the asynchrony of computer-mediated communication (CMC) in particular helps to make the virtual community a place where elderly people can enjoy discussion, share their old stories with others, and listen at their own pace. The immediacy of CMC also helps them build social connectedness, especially when they were suffering from a disaster, such as an earthquake or a typhoon. In a separate study, Inoguchi & Fujii (2009) reported that Japan is a highly digitalized society, as evidenced by high rates of broadband and computer penetration, but the society is becoming weaker in terms of interpersonal relationships. However, those who live globally and socially connected lives tend to experience a greater quality of life.

In 2006, the Asia Barometer Survey conducted a series of studies across several Asian countries/cities aimed at exploring the factors shaping people's assessments of overall

life quality. The study of 1,038 respondents showed that the majority of Singaporeans were satisfied with their standard of living. The results also showed that single males use the Internet and mobile phones more often than others. Education and income are also important predictors for Internet usage. People with lower levels of education and lower income are less engaged in digital life. Interpersonal relationships contribute significantly to the happiness of Singaporeans, and the Internet contributes much to such relationships, especially the use of social media, such as Facebook, instant messengers (IM), blogs, and Twitter, by providing a way to maintain and expand their interpersonal connections at a very low cost. In this way, the Internet improves the quality of life in Singapore (Tambyah, Tan, & Kau, 2009).

The Asia Barometer Survey also studied how forces of industrialization, democratization, globalization, and digitalization have affected the quality of life in South Korea. Park (2009) reported that lifestyle in South Korea is highly modernized and digitalized. Results reveal that positive assessments of their standard of living and marriage are the most powerful predictors for quality of life. The study also found that digital life (i.e., amount of Internet and mobile phone use) contributes significantly to happiness, while other lifestyle characteristics, such as being modern, religious, or globalized, do not.

Hong Kong, another Asian city in the Asia Barometer Survey in 2006, has a high level of public access to the Internet. About 52 % of public places have Wi-Fi connections. Also, compared with other Asian countries and regions, Hong Kong has a large number of heavy users of digital products. In fact, according to the survey of 1,000 respondents, digital access has made the greatest contribution to Hong Kong people's enjoyment and happiness; thus, the improvement in digital life means a better quality of daily life. According to the survey, 36 % of Hong Kong residents have family or relatives overseas, and one third of them keep regular contact with their overseas relatives via the Internet. Thus, the Internet is particularly helpful in Hong Kong

since it facilitates interpersonal communication between geographically separated people. E-mail, chatting tools, Skype, and social network sites (SNS) help to maintain close family relationships and emotional contact, which are key elements of a high life quality (Sing, 2009).

In China, the Asia Barometer Survey of 2,000 respondents found that the majority of the Chinese people are happy with their lives. This result was surprising; however, when the survey was conducted, a large number of Chinese residents reported that they did not have access to digital telecommunication technologies, such as the Internet and cellular phone – especially in the rural areas. According to the survey, 71 % of the respondents seldom or never view an Internet page, 83 % never write an e-mail, and 54 % never edit and send a mobile message. Yet their quality of life was not influenced by such poor digital access. Rather, life quality in China is much more affected by socioeconomic factors, such as income and education level. Shu and Zhu (2009) explained that sustained economic growth and satisfaction with interpersonal life and married life were the reasons for the prevalence of subjective well-being in China.

Meanwhile, in a separate comparative study, scholars from four different Chinese societies, namely, Beijing, Hong Kong, Taiwan, and Wuhan, found that the Internet is considered the most important medium for raising quality of life in the four cities, and demographic characteristics such as education levels have strong influences on the assessment of the Internet's role in quality of life (Lee, Leung, Lo, Xiong, & Wu, 2011). The study concluded that the perceived role of information communication technologies (ICTs) and especially the Internet, in affecting quality of life, was to satisfy four basic needs, including the need for interaction, the need for being in touch, the need for instantaneous communication, and the need for entertainment. Furthermore, people's assessment of an ICT's value in raising their QoL varies with the penetration rate of that ICT – the higher the penetration, the more positive the assessment of that ICT's role in QoL (Lee, Leung, Lo, & Xiong, 2008).

Linking Internet to Quality of Life

Social Relationships

A discussion of whether the Internet facilitates or harms social relationships has seldom ended in agreement. Optimistic researchers claim that the Internet has a positive influence on interpersonal relationships, since it lowers the barriers for far-distance communication and thereby increases the communication efficiency that face-to-face communication could not reach. Also, scholars believe that the Internet helps build new interpersonal links, thus strengthens weak-tie connections. Therefore, Internet users may have a richer quality of life in the sense that interpersonal connection plays a significant role in enhancing one's life satisfaction (Hlebec, Manfreda, & Vehovar, 2006).

Past studies have investigated the relationship between social media usage and social capital. Results have shown that greater use of social media sites (SNS) is associated with greater perceived amounts of bridging and social bonding capital (Ellison, Steinfield, & Lampe, 2007; Steinfield, DiMicco, Ellison, and Lampe, 2009). Ko and Kuo (2009) also found that self-disclosure significantly and directly affects the bonding and bridging social capital of bloggers, which in turn enhances the perception of bloggers' subjective well-being. Bloggers share their inner feelings or moods with others through writing blogs and thus may gain social support and improve their social integration. Social capital built through blogging may improve bloggers' satisfaction with their interpersonal communication, social network, and overall quality of life. Building from Putnam's (1995) conceptual links between quality of life, community involvement, and social capital, Kavanagh and Patterson (2001) also demonstrated that frequent and increasing use of the community network via the Internet significantly influences social capital formation.

On the other hand, many scholars support a pessimistic view that the richness of communication via CMC is decreased due to its nonverbal character. As a consequence, the Internet may not take the place of face-to-face social networks and may not enhance one's satisfaction with social

life. In fact, researchers have found that the Internet actually isolates people in the way that it reduces face-to-face social contact and verbal communication (Kraut et al., 1998).

Besides material life, by exploring information on the Internet, technology experts can make good use of the Internet to socialize and interact with friends. Such users satisfy their social and psychological needs by exploring information through various Internet activities, such as instant messaging, using social network sites (SNS), blogs, online news, and music and video downloads (Leung, 2010). For people who are shy, disabled, or depressed, the Internet is a good medium for exchanging information. In other words, computer-mediated interpersonal communication in turn raises people's satisfaction with their relationships with others, including families, colleagues, friends, and so on. However, people with Internet addiction, or people who are too busy, would rely entirely on Internet services for most of their activities. As a result, they may become more isolated and lonely, and it might cause lower satisfaction with their quality of life.

Information Seeking and Learning

Being global citizens, and with the convenience and efficiency of the Internet, Internet users can engage in customized and collaborative learning across national boundaries in the Web 2.0 era. Students today have access too much of the world's knowledge at their fingertips. Learning now takes place when and where the learner wants it to, instead of in the traditional classroom. Besides turning to the Internet for information, a recent study by Pew indicated that 64 % of Internet users engage in some form of content creation as well (Lenhart et al., 2007), of which Wikipedia is a classic example. As a global encyclopedia created and edited by contributors worldwide, Wikipedia provides the "netizen" with a platform on which to practice collaboration.

Past study also supported the notion that information literacy is significantly linked to quality of life. Specifically, Internet users who reported that they were more critical-, tool-, and socially/culturally literate in Internet literacy tended to enjoy a higher quality of life (Leung,

2010). This reinforces the profound belief of Internet users, regardless of race, gender, and culture, in the fundamental right to the free flow of information and the importance of personally evaluating and judging if information is accurate and trustworthy. As expected, Internet users who are competent with Internet tools, such as knowledge and use of appropriate connectivity methods, networking, databases, desktop publishing, and communication hardware and software, tended to be knowledgeable about how to access the information necessary for making important life decisions (Lee et al., 2008; Murray, 2003). These decisions may include getting information on school, university, or career training; helping to find or move work; getting information on a cure or treatment to deal with a major illness or health condition; making a major investment or financial decision; finding a way to save or to make money; and developing lasting interpersonal relationships and/or finding romance. As a result, this helps them enhance their life quality. In summary, as argued by Buckingham & Willett (2006), information literacy provides people with "awareness, analysis, reflection, action, and experience that leads to better critical skills such as comprehension, critical thinking, and informed judgments to discriminate all types of information" (p. 169).

Entertainment and Leisure

Before the emergence of the Internet, people were used to outdoor activities, such as football and basketball, as their leisure activities. Yet in a generation's time, people were surprised to find that most games are now played indoors and, more specifically, are played online. Video games are played on the Internet with multiplayer collaboration. New albums, fashions, and movies are first discovered on a friend's Facebook profile. Actually, the Internet was supposed to help users individualize their entertainment sources so as to enjoy oneself to the maximum extent. The Internet, together with the smart phone, brings great convenience for such entertainment. Websites like Facebook and YouTube offer movie screen that allow online movie watching. Search engines like Google

and Yahoo provide music ranking and free downloads. Especially in Asia, over 90 % of young cellular phone users connect to the Internet through their smart phones. And more often than not, this technology is used to watch movies, listen to music, read novels, and play games (Kharif, 2007).

Besides the physical change, the definition of leisure has also been expanded from physical relaxation to perceived empowerment (Leung, 2009, 2010). Nowadays many young Internet users regularly visit blogs and find that writing their own blog and commenting on others are new ways to be entertained. When SNS websites like Facebook emerged, young people were even more encouraged by the Website's functions, and influenced by their peers, to generate content themselves. In fact, nearly 75 % of Internet users in the United States now believe that having fun with a product is as important as just using it and the biggest fun is to contribute to it (Beck & Wade, 2004). Generating content online significantly influences perceived psychological empowerment. The more content users produced (such as on YouTube, Facebook, blogs, forums, and Wikipedia), the more self-efficacy and perceived competence they will exhibit (Leung, 2010).

In sum, these support the findings of past studies; those who have a positive attitude and past experience with the Internet (e.g., rely on the Internet for social support, reducing stress, social compensation, mood management, leisure, and entertainment) report higher quality life ratings (Leung, 2007, 2008; Leung & Lee, 2005; Lloyd & Auld, 2001).

Discussion

The pursuit of QoL is a growing concern for individuals and city planners seeking to find sustainable life satisfaction in a technologically changing world (Mercer, 1994). However, with the ubiquitous Internet, people may be working harder than ever because they are living in the most plugged-in and mechanized society in history. Rather than creating time for leisure, technology is creating ways that make it possible to undertake more spillover work at home (Leung, 2011). Smart phones, iPods, iPads, and devices

that allow Internet access may be making it virtually impossible to escape our jobs. Technology may diminish our leisure time, not increase it (Anderson & Tracey, 2001). Does using the Internet make people happier or unhappier? Does virtual community erode face-to-face community? These are some of the key questions social scientists are still exploring today.

Cross-References

► ICTs Role in QOL

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Interpersonal and Intrapersonal Comparisons in Happiness Ratings

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Synonyms

[Relative standards models](#)

Definition

People formulate ► **happiness** ratings by considering intrapersonal comparisons (i.e., comparisons between how happy they currently feel and how happy they typically feel) and interpersonal comparisons (i.e., comparisons between how happy they feel and how happy they think other people feel), and happiness ratings differ reliably depending on which comparison standards are considered.

Description

Steffel and Oppenheimer (2009) conducted three studies exploring the ► **accessibility** and perceived relevance of intrapersonal and interpersonal comparison standards in formulating happiness judgments and the impact of these comparison standards on ► **happiness** ratings.

- Study 1 examined the extent to which people consider intrapersonal and interpersonal comparisons when formulating happiness ratings. It also explored how the relative weight people place on these comparison standards influences happiness ratings. Participants were asked the question, "How happy are you?" and rated their happiness on a 9-point scale ranging from 1 (*not at all happy*) to 9 (*very happy*). Then, they were asked to what extent they considered each comparison standard by rating: "I thought about how happy I am compared to most other people" and "I thought about how happy I am compared to what is typical for me," on a scale ranging from 0 (*not at all a consideration*) to 4 (*very strong consideration*). Participants rated both intrapersonal and interpersonal comparisons as strong considerations, but rated interpersonal comparisons as a relatively weaker consideration. Participants provided higher happiness ratings the more they considered interpersonal comparisons over intrapersonal comparisons.
- Study 2 investigated whether intrapersonal or interpersonal comparison standards come

to mind more readily when people formulate happiness ratings and whether the relative accessibility of these comparison standards influences these happiness ratings. As in Study 1, participants were asked the question, "How happy are you?" After providing happiness ratings, participants were asked, "When you answered the question, 'How happy are you?' what did you consider?" and then completed the statement, "I thought about how happy I am compared to _____. Two independent coders, who were blind to the hypothesis, classified each statement as an intrapersonal standard, interpersonal standard, or neither an intrapersonal nor an interpersonal comparison standard, and a third coder, who was also blind to the hypothesis, resolved the differences. Fifty-nine percent of participants reported using intrapersonal comparisons, 29 % reported using interpersonal comparisons, and 12 % reported using some other comparison standard. The difference in the number of statements classified as intrapersonal and the number of statements classified as interpersonal was statistically reliable. Happiness ratings were significantly higher when people used interpersonal comparisons than intrapersonal comparisons.

• Study 3 examined the influence of comparison standards on ratings of happiness by prompting an intrapersonal comparison standard or an interpersonal comparison standard and comparing these ratings to those in a no-prompt control condition. In the intrapersonal comparison condition, participants were asked, "How happy are you compared to what is typical for you?" In the interpersonal comparison condition, participants were asked, "How happy are you compared to other people?" In control condition, participants were asked, "How happy are you?" After providing happiness ratings, participants in the control condition were asked, "When you answered the question, 'How happy are you?' what did you consider?" and completed the statement, "I thought about how happy I am compared to _____."

Happiness ratings were higher when people were prompted to use interpersonal comparisons than when they were prompted to use intrapersonal comparisons. Happiness ratings in the control condition did not significantly differ from those in the interpersonal condition or in the intrapersonal condition. To evaluate what comparisons participants used in the control condition, two independent coders, who were blind to the hypothesis, classified participant's free response statements as intrapersonal standards, interpersonal standards, or neither intrapersonal nor an interpersonal comparison standards, and a third coder, who was also blind to the hypothesis, resolved the differences. Within the control condition, 19 participants reported using intrapersonal comparisons, eight participants reported using interpersonal comparisons, and one participant reported using some other comparison standard. The difference in the number of statements classified as intrapersonal and the number of statements classified as interpersonal was statistically reliable. Happiness ratings did not significantly differ depending on the comparison standard used, but the trend was such that happiness ratings were higher among people who reported using interpersonal comparisons than among people who reported using intrapersonal comparisons.

In summary, intrapersonal comparisons (i.e., comparisons between how happy they currently feel and how happy they typically feel) and interpersonal comparisons (i.e., comparisons between how happy they feel and how happy they think other people feel) play an important role in shaping people's happiness ratings. People consider intrapersonal comparisons to be more important than interpersonal comparisons to their happiness judgments, and they are more likely to report adopting intrapersonal comparisons than interpersonal comparisons. People rate themselves to be happier when they formulate their happiness ratings using an interpersonal comparison standard than when they use an intrapersonal comparison standard, perhaps because people hold naive theories that

they are better off than most other people in general (Lykken & Tellegen, 1996) or because they selectively compare themselves to people who are less fortunate (Taylor & Brown, 1988; Wills, 1981).

Discussion

This research is consistent with other research showing that happiness ratings are not simply readouts of absolute internal states but rather judgments that are relative and context dependent. People's happiness ratings vary depending on the comparison standards that are made salient at the time of judgment (Schwarz & Strack, 1991; but see Schimmack & Oishi, 2005, for a discussion of the robustness of context effects on well-being judgments). For example, people rate themselves happier when they consider a negative event in their past (Strack, Schwarz, & Gschneidinger, 1985) and when they are in the presence of another person who was relatively worse off (Strack, Schwarz, Chassein, Kern, & Wagner, 1990).

These results have important implications for research on ► subjective well-being. Questions such as how happiness varies over time and across people are of central importance in well-being research. Research on ► adaptation and inter-temporal aspects of well-being has emphasized how happiness varies over time (e.g., Brickman & Campbell, 1971; Helson, 1964). Research on relative deprivation, cross-cultural comparisons, or cross-national comparisons, on the other hand, has emphasized how happiness varies across people (e.g., Crosby, 1982). Given the interest in how happiness varies across time and across people, it is important that the ► happiness measures researchers use be sensitive to these distinctions.

In the absence of an experimenter-specified comparison standard, research participants may adopt comparison standards that do not correspond with the objectives of a given study. To the extent that an incongruity exists between the comparisons of interest to researchers and the comparisons people use when rating their

happiness, important differences could end up diluted or misrepresented. Given that people tend to spontaneously adopt an intrapersonal comparison standard, happiness ratings elicited in the absence of a comparison standard may be especially poor at capturing differences in happiness across people. To ensure that the comparison standards participants use correspond with the comparisons of interest to researchers, happiness measures should explicitly specify comparison standards based on the objective of the research.

Cross-References

- Adaptation
- Adaptation-Level Theory
- Cross-Cultural Comparison
- Cross-National Comparison(s)
- Hedonic Adaptation
- Inter-temporal Aspect of Well-Being

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Interpersonal Conflict and Health

- Marital Conflict and Health

Interpersonal Exchange Model of Sexual Satisfaction (IEMSS)

- Sexual Satisfaction and Sexual Costs in Women

Interpersonal Perception Task (IPT)

- Measuring Emotion Recognition Ability

Interpersonal Relationships

- Relational Goods

Interpersonal Satisfaction in Marriage

- Marital Adjustment over 25 Years

Interpersonal Sensitivity

- ▶ Measuring Emotion Recognition Ability

Interpersonal Trust Scale

- ▶ Trust

Interpretation of Illness and Spiritual Needs

- ▶ Spiritual Needs of Those with Chronic Diseases

Interpretive Frameworks

- ▶ Meta-Hermeneutics

Inter-rater Agreement

- ▶ Inter-rater Reliability

Inter-rater Concordance

- ▶ Inter-rater Reliability

Inter-rater Reliability

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Synonyms

Inter-rater agreement; Inter-rater concordance

Definition

Inter-rater reliability determines the extent to which two or more raters obtain the same result when using the same instrument to measure a concept.

Description

Inter-rater reliability refers to a comparison of scores assigned to the same target (either patient or other stimuli) by two or more raters (Marshall, Hays, & Nicholas, 1994). Both rater selection and intraindividual response variability influence random error in this case.

The kappa statistic can be used if one is interested in estimating exact agreement between raters for a variable measured on a nominal, ordinal, or interval level scale (it is also possible to provide partial credit for non-exact agreement using a weighted kappa (Cohen, 1968). Kappa is known as a quality index, because it compares observed agreement with agreement expected by chance. The general formula for kappa is

$$K = \frac{\text{observed proportion agreement} - \text{chance expected proportion agreement}}{1 - \text{chance expected proportion agreement}}$$

Agreement expected by chance is determined by assuming each rater made their ratings randomly but with probabilities equal to the

overall proportions or marginal frequencies. The chance proportion is the proportion of pairs that would be expected to end up by

Inter-rater Reliability, Table 1 Interpretation of kappa

Value of K	Interpretation
≤0.20	Poor agreement
0.21–0.40	Fair agreement
0.41–0.60	Moderate agreement
0.61–0.80	Good agreement
0.81–1.00	Very good agreement

chance in the diagonal representing agreement between one rater and another. The proportion of agreement expected by chance is computed just as are expected cell frequencies in chi-square based on the marginals from the two-way cross-tabulation of ratings.

Rules of thumb for interpreting the magnitude of kappa have been provided by Fleiss (1981), Landis and Koch (1977), and Altman (1991) (Table 1) (Altman, 1991; Fleiss, 1981; Landis & Koch, 1977). The limitations and extent to which kappa depends on the degree of the balance and symmetry of marginals is discussed elsewhere (Cicchetti & Feinstein, 1990; Feinstein & Cicchetti, 1990). For nominal data, kappa is mathematically equivalent to the intraclass correlation. For ordinal and interval level data, weighted kappa and the intraclass correlation are equivalent under certain conditions (Fleiss & Cohen, 1973).

Another way of performing reliability testing is to use the intraclass correlation coefficient (ICC). There are different forms of ICCs based on the study design used to assess agreement among raters and the assumptions made within those designs (e.g., whether the raters are considered random or fixed effects) (Shrout & Fleiss, 1979). ICCs range from 0, representing no agreement, to 1, representing perfect agreement. Interpretation of ICC values is similar to that used for interpreting kappa (Table 1).

The literature provides some examples of using kappa to evaluate inter-rater reliability of quality of life measures. In one example, kappa was used to assess agreement in Health Utilities Index (HUI) score between the following pairs: pediatric patients and their parents, pediatric patients and their doctors, and the parents and

doctors (Morrow, Hayen, Quine, Scheinberg, & Craig, 2011). For all diagnoses of chronic conditions combined (e.g., cystic fibrosis, diabetes, neurology), agreement for HUI2 attributes between children and parents was, in general, higher than for agreement between children and doctors. This was particularly true for subjective areas such as cognition and pain. Kappa for agreement between children and parents ranged from 0.29 (cognition) to 0.59 (mobility) for HUI2 attributes and from 0.12 (dexterity) to 0.52 (ambulation) for HUI3 attributes. The highest level of agreement was seen between the parents and doctors, with kappa for agreement ranging from 0.10 (emotion) to 0.86 (self-care) for HUI2 attributes and from 0.21 (pain) to 0.64 (ambulation) for HUI3 attributes. These findings show that the strength of agreement between respondent pairs is lower for subjective attributes and higher for objective attributes.

In another relevant example of inter-rater reliability, kappa was used to assess agreement in scores for the Quality of Life in Alzheimer's Disease scale (QoL-AD) between patients with dementia and staff within residential homes (Hoe, Hancock, Livingston, & Orrell, 2006). For individual QoL-AD items, the level of agreement between patient and staff ratings ranged from -0.02 (mood) to 0.20 (self as whole). The kappa for the total score was 0.29. These findings indicate a discrepancy between patient and staff ratings of individual items.

ICCs were used to assess inter-rater reliability in scores for the Schizophrenia Outcomes Functioning Interview (SOFI) (Kleinman et al., 2009). In this study, two independent interviewers rated the SOFI for community residing patients with schizophrenia. Two independent interviewers also rated the SOFI for informants of the patients with schizophrenia (i.e., informal or formal caregiver such as a family member or case manager). For SOFI domains, ICCs ranged from 0.53 (productive activities) to 0.73 (instrumental activities of daily living) for the patients and from 0.50 (social functioning) to 0.79 (instrumental activities of daily living) for

the informants. These findings indicate moderate to good agreement between raters for the SOFI domains.

Cross-References

► Intraclass Correlation Coefficient (ICC)

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Interscale Correlations

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Definition

The relationship (correlation) between separate scales or subscales.

Description

The value between +1 and –1 that represents the correlation between two scales is the interscale correlation. In quality of life literature, interscale correlations are used frequently (Aaronson et al., 1993; Borghede & Sullivan, 1996; Fekkes et al., 2000; Hearn & Higginson, 1997). A researcher may choose to determine the interscale correlation in situations in which she/he has multiple scales and wants to investigate the relationship between the variables that those scales are measuring. Depending on the nature of the research, a high or low interscale correlation could be sought after.

In the case of a validity study, a researcher may want to examine how similar a newly created scale is to another scale that is deemed to be a “gold standard.” Finding that the researcher’s scale has a high correlation with the other scale would lend itself to evidence of ► convergent validity. Conversely, finding a low interscale correlation would suggest that the two scales are measuring separate variables, which would not support the researcher’s validity argument, and could indicate that further effort is needed to specify the variable being measured by the newly constructed scale. If, however, the researcher wishes to explicitly show that a scale is not related to something which it should not be measuring, a low interscale correlation would be ideal. This type of research would suggest ► discriminant validity evidence.

Alternatively, a researcher may find that two or more subscales within a larger instrument have a high interscale correlation. A strong correlation may not be suitable for the purposes of the instrument because if there are separate subscales to begin with, the intention would be to measure separate constructs. It would be likely that the subscales are correlated in some way; however, if the interscale correlation is too high, the indication is that there is excessive overlap between what the subscales are attempting to measure. This method of research is also an investigation of validity evidence.

When using a ► **Multitrait-Multimethod** (MTMM) approach, the basic analytic data involved is the interscale correlation. As the name implies, the MTMM approach aims to measure multiple traits through multiple methods (Trochim, 2006), and a matrix that illustrates the intercorrelations between the various methods and traits is produced. Finding the correlations between a number of scales measuring one or various traits would provide at least part of the matrix pattern necessary for a MTMM matrix.

In some cases of interscale correlations, it is common to correct for ► **measurement error**. This disattenuation is necessary in the theoretical context. That is, if the researcher is interested in the correlation of the true scores of two scales, then the weakening effect of measurement error should be separated out from the interscale correlation. However, in an applied operational setting, it may be useful to consider that measurement error is conceivably a part of the variable being measured. Consequently, an attenuated interscale correlation may be ideal for the purpose of the research.

Cross-References

- **Convergent Validity**
- **Discriminant Validity**
- **Measurement Error**

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Interstate Migration

- **Internal Migration**

Inter-temporal Aspect of Well-Being

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Synonyms

Comparison over time; S-time-distance; Time distance; Time preference

Definition

People have memories of the past and expectations about the future; they compare over many dimensions and over time. This explicitly or implicitly introduces the concept of

inter-temporal aspect of well-being. The perception of well-being is subjective. The concept of well-being and ► progress has to deal not only with the categories, measurement, and data availability but also with interpersonal and inter-temporal comparisons of the chosen constituent elements.

The time perspective, which no doubt exists in human perception when comparing different situations, has been with the S-time-distance method systematically introduced in a specific way both as a concept and as a quantifiable measure in statistical and comparative analysis. Statistical measure S-time-distance measures the distance (proximity) in time between the points in time when the two series compared reach the same level of the indicator X. The observed distance in time (the number of years, quarters, months, etc.) for given levels of the indicator is used as a temporal measure of disparity between the two series, in the same way that the observed difference (absolute or relative) at a given point in time is used as a static measure of disparity (Sicherl, 2011).

Description

Measures to Build the Perceptions About the Degree of Disparity in Indicators of Well-Being

Time, besides money, is one of the most important reference frameworks in a modern society. The inter-temporal aspects of well-being relate both to individuals regarding their time preference and even to a greater extent to comparing situation between countries, regions, gender, socioeconomic groups, individuals, etc., over time.

Measuring well-being and ► societal progress in such entities is a complex undertaking and involves in its essence the search how to answer in an agreeable way two questions which transcend fields of concern and technicalities: *PERCEPTION ABOUT WHAT* (elements of well-being and societal progress) and *WHICH MEASURES TO USE TO BUILD*

PERCEPTION ABOUT THEM (measures to present and to communicate the topics also for policy making). It is a process of discussion among many options, in many cases competing options with respect to the theoretical concepts, statistical measures, data collection procedures, and important issues for policy debate. In policy-oriented research three types of issues are involved (Sicherl, 1992, 2007):

1. Estimation of statistical measures of “position” and “progress,” which can be thought of as “objective” measures of the multidimensional notion of distances in time and indicator space for a set of indicators
2. Value judgments that are associated with them and that give subjective weights to the “objective” measures within and across various dimensions and fields of concern
3. Analysis of behavior related to reactions of people to the perceptions formed on such basis with respect to the level and change in their position

The perceptions on well-being and societal progress and the resulting decisions, behaviors, and actions undertaken are also influenced by the quantitative indicators and measures that are used in the measurement, presentation, and semantics of discussing these issues. They are an indispensable part of the elements from which the perceptions are formed and the decisions are being made.

In discussing the question which measures to use to build the perception of the position of a given unit within the country or in the world, a minimal analytical framework would consist of elements from two types of information (Sicherl, 1978, 2007):

1. Information about the present and inter-temporal position of the observed unit, without regard to the position of other units. The level and the growth rate of the relevant welfare attributes are examples of this type.
2. Information about the position of the observed unit in relation to other units. Quantitative measures of static relative position (like absolute and relative differences and for the case of many units Lorenz curve, ► **Gini coefficient**, Theil index, etc.) have to be

supplemented by time distance to incorporate the temporal relative position of a given unit with respect to compared units as an essential element of analysis.

Time-Distance Role in Measurement, Presentation, and Semantics of These Perceptions

Time distance in general means the difference in time when two events occurred. In spatial analysis time distance may mean the time needed to come from one point to another point in space. S-time-distance is a special category of time distance, which is related to the level of the analyzed indicator.

The theoretical background stems from the fact that there are two obvious generic directions of time-series comparison: by time and by level. In graphical terms, the usual way to compare time series is to look at the vertical dimension, i.e., for a given point in time. The time-distance approach provides an additional perspective, comparing time series in the horizontal dimension, i.e., for a given level of the variable. A new view of the information using levels of the variable as identifiers and time as the focus of comparison and numeraire provides new insight from existing time-series data (Sicherl, 1973).

The time-distance approach has two advantages: first, expressed in time units, it is intuitively understandable by policy-makers, professionals, managers, media, and the general public; second, time distance can be compared across variables, fields of concern, and units of comparison. Since time-distance view provides an additional dimension of temporal disparity between two time series, results by other methods are left unchanged, but new conclusions can be reached.

The applications of the time-distance approach fall in two broad categories. The first application is in statistics as an innovative approach for looking at time-series data and adding two generic statistical measures S-time-distance and S-time-step to existing measures. They enable additional exploitation of data and alternate means of visualization of time-related databases and indicator systems; in addition to their use as descriptive statistical measures, they

Inter-temporal Aspect of Well-Being, Table 1 Time-matrix transformation of a conventional time series: time when a specified level of the variable was achieved by each compared unit

Level	Time $t_i (X_L)$	Time $t_j (X_L)$
X_{L1}		$t_j (X_{L1})$
X_{L2}	$t_i (X_{L2})$	$t_j (X_{L2})$
X_{L3}	$t_i (X_{L3})$	$t_j (X_{L3})$
...
X_{Ln}	$t_i (X_{Ln})$	

have the potential to provide new insights from existing data for a variety of situations in economics, management, research, and statistics. Time-distance methodology is not oriented only towards some specific substantive problem, but it represents an additional view to many problems and applications (Sicherl, 2011).

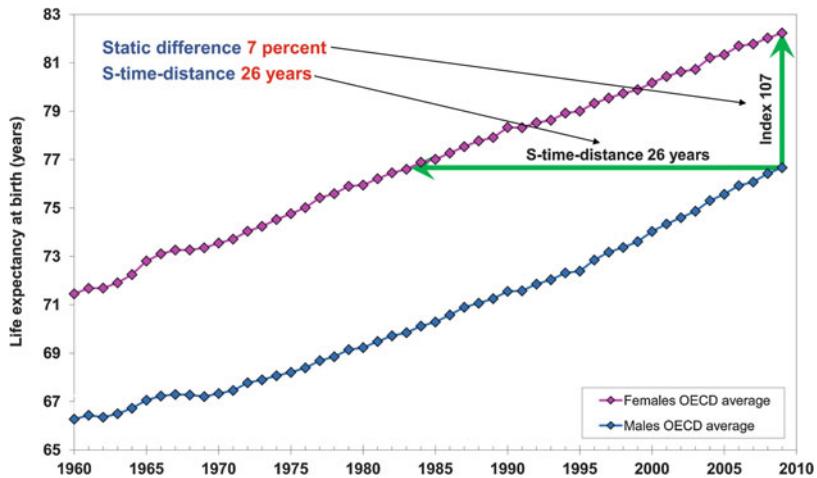
Time-matrix transformation of the usual time series by specifying time when a specified level of the variable was achieved in each compared unit (Table 1) establishes the format from which two generic statistical measures relevant for inter-temporal aspect of comparisons can be derived. S-time-distance between two series is derived by subtracting horizontally the respective times for a given level in the time matrix. Conversely, subtracting the years in the time matrix for consecutive levels of the variable for each column vertically allows derivation of the S-time-step.

S-time-distance as a time measure of the inter-temporal gap between two compared units presents information about the position of the observed unit in relation to other units influencing their perception of well-being in comparison with others. S-time-step is a time measure of dynamics indicating how much time was needed to come from one selected level of the indicator to another selected level.

The second application is to better understand the information contained in statistical data, to build knowledge, and to allow discussing policy and business issues in a new inter-temporal perspective. Empirically, when comparing across indicators and over time, static and time-distance measures of disparities can differ significantly. To take into account the inter-temporal aspect, the concept of “overall degree of disparity”

Inter-temporal Aspect of Well-Being,

Fig. 1 Gender disparities in life expectancy at birth, OECD average in 2009: static and time distance
Source: Own calculation based on data from Factbook 2011 (OECD, 2011b)



(or proximity) is defined, which is based on a simultaneous perception of disparity/proximity in both the indicator space and in time. It argues that the overall degree of disparity should be measured in two dimensions, complementing existing static measures of disparity in the indicator space with measures of disparity in time, and that this concept can lead to a different perception of the extent of disparity.

The Concept of “Overall Degree of Disparity” Depends on both Static and Time-Distance Measures

While statistically time series can be generally compared in the two dimensions, the idea can be extended to the perception of the degree of disparity so that the concept of “overall degree of disparity” can combine measures of both dimensions of the gap, static and time distance, since both of them matter. This concept can lead to a different perception of the extent of disparity than that conveyed by conventional static measures alone. Figure 1 demonstrates that for gender disparity in **life expectancy** for OECD average.

Another example could be a simple comparison of income disparities between two countries, regions, or social groups under two scenarios, which differ in terms of the pace of income growth: scenario A assumes a (constant) income growth rate of 4 %, and scenario B assumes a slower growth rate of 1 %. For

simplicity, the income of both units is supposed to increase at the same rate. In the two compared units, the value of the indicator for region 1 is 50 % higher than that of region 2 in both scenarios. If one uses for the evaluation of the magnitude of the gap between the two regions the conventional statistical measures like ratio, percentage, ► **Gini coefficient**, and Theil index, these two scenarios show the same degree of disparity for the two scenarios.

However, time-distance approach suggests a very different conclusion compared to the static differences in the indicator space. In scenario A, the one characterized by a 4 % income growth rate, the 50 % static disparity translates into a time distance between the two units of 10 years, while in scenario B, with 1 % growth rate, the time distance between the units is 40 years. It is highly unlikely that ordinary people would perceive the two scenarios as being characterized by the same degree of disparity, and yet this is the conclusion suggested by conventional static analysis (Sicherl, 2004, 2007).

The analytical conclusion that higher magnitudes of growth rates lead, *ceteris paribus*, to smaller time distances, and vice versa, is important in explaining past developments, in building perceptions about disparities in well-being, and in preparing policy recommendations. In the dynamic world of today, it is hardly satisfactory to rely only on static measures of disparity which are insensitive to the

magnitudes of the growth rates. While the subjective weights that people would attach to disparities in the indicator space and in time is an open question, it may be safe to assume that a situation with 50 % static difference and time distance of 10 years is preferable to the situation with the same static difference and time distance of 40 years indicated in the example above.

Empirically, when comparing across indicators and periods of time, static and time-distance measures of disparities can differ significantly. The greater the difference in the growth rates of the indicators, the greater is the possibility of such divergence. In this respect time distance plays in the analysis of disparities an important role by adding into discussion the inter-temporal aspect, complementing static measures, and leading to new questions, new hypotheses, and new semantics and possibly to different overall conclusions.

The Time-Distance Perspective of Disparities

Time distance as a measure of inter-temporal disparity is examined in more detail for three cases: gender disparity in life expectancy for OECD average, world disparities in GDP per capita and life expectancy, and for disparities in human development index. However, e.g., it has been applied for several other cases of comparisons in both dimensions: comparing regions by Sicherl (1980) for ILO and Sicherl (1992), comparing USA and EU by EUROCHAMBRES (2005) for digital divide for 200 countries by ITU (2010), comparing USA counties for life expectancy with world frontier countries (Kulkarni, Levin-Rector, Ezzati, & Murray, 2011), comparing OECD countries, and comparing EU countries (Sicherl, 2012), etc.

In its simpler form, the time-distance approach can be best applied to time series that are continuously increasing or decreasing; in such cases there is no need to deal with possible multiple crossings at a given level of the variable. More complex procedures are needed for other cases, as illustrated by Granger and Jeon (1997) in the case of forecasting and regression models. Another set of examples beyond the inter-temporal aspects of well-being is the

use of S-time-distance as time measure of deviation for ► monitoring implementation of Millennium Development Goals and Lisbon Strategy for EU (Sicherl, 2012) and the possibilities for comparing actual values with target values, forecast, budget, plan, or for goodness of fit in regression and models (Sicherl, 1994).

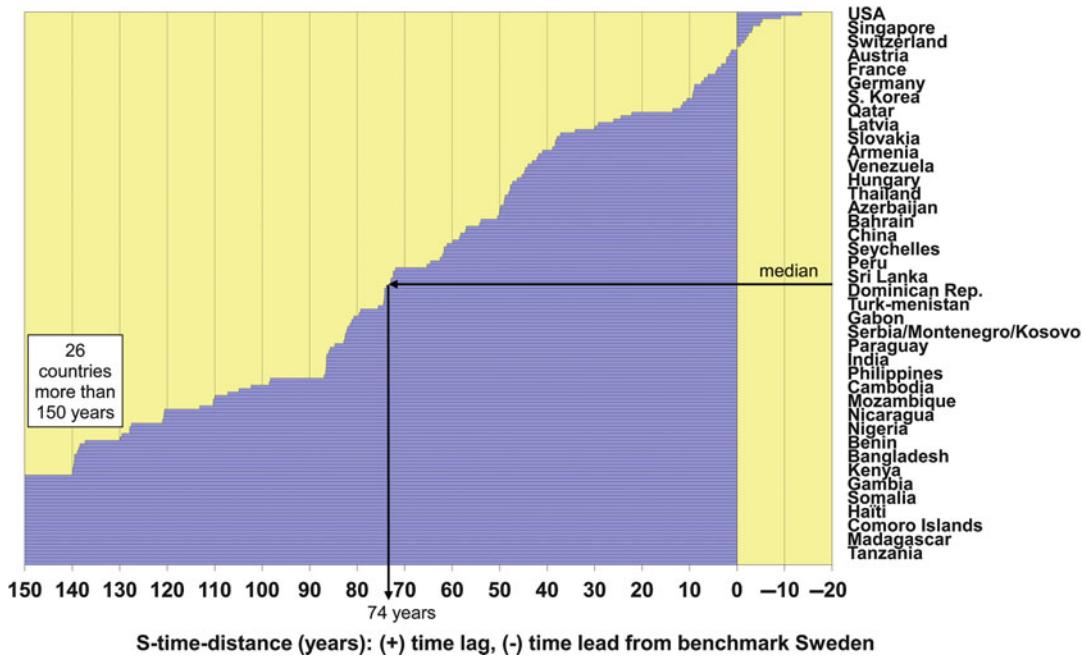
Gender Disparity in Life Expectancy for OECD Average

Figure 1 shows that, for the case of gender differences in life expectancy, perceptions of the size of this gap can be very different depending on the measure used. For example, the static difference between the two lines in 2009 is 7 % (which may appear to be small), while the time distance is 26 years (which gives a very different perception). For more realistic evaluation of the situation, we need both measures, and the subjective weights given to each of them might be different for different people and for different indicators.

World Disparities: GDP per Capita and Life Expectancy

The inter-temporal aspects of the gap between different countries can be illustrated for two indicators: GDP per capita and life expectancy. In addition to the absolute or relative static measures, it is possible also to add the perception of the degree of the gap in time. In analysis there will generally be very different selection of the benchmark comparator in line with the issue at hand. Here the example refers to the comparison of time distances (time lead or time lag) against the benchmark of the long-term time series of Sweden; for GDP per capita the time distances are calculated for 160 countries in 2008 based on data from Maddison (2010) and for life expectancy for 187 countries in 2011 based on data as presented in the ► Human Development Report (UNDP, 2011) against the long-term time series for Sweden in Mitchell (2003). Sweden was selected as the benchmark because for Sweden there are available long time series for indicators to cover a large range of historical development of the country.

For GDP per capita time distances in Fig. 2 show the difference in years between the 2008



Inter-temporal Aspect of Well-Being, Fig. 2 S-time-distance for GDP per capita of different countries relative to Sweden, 2008: difference in years between the 2008

level of GDP per capita in each country and the year when the same level was achieved in Sweden. Source: Own calculation based on data from Maddison (2010)

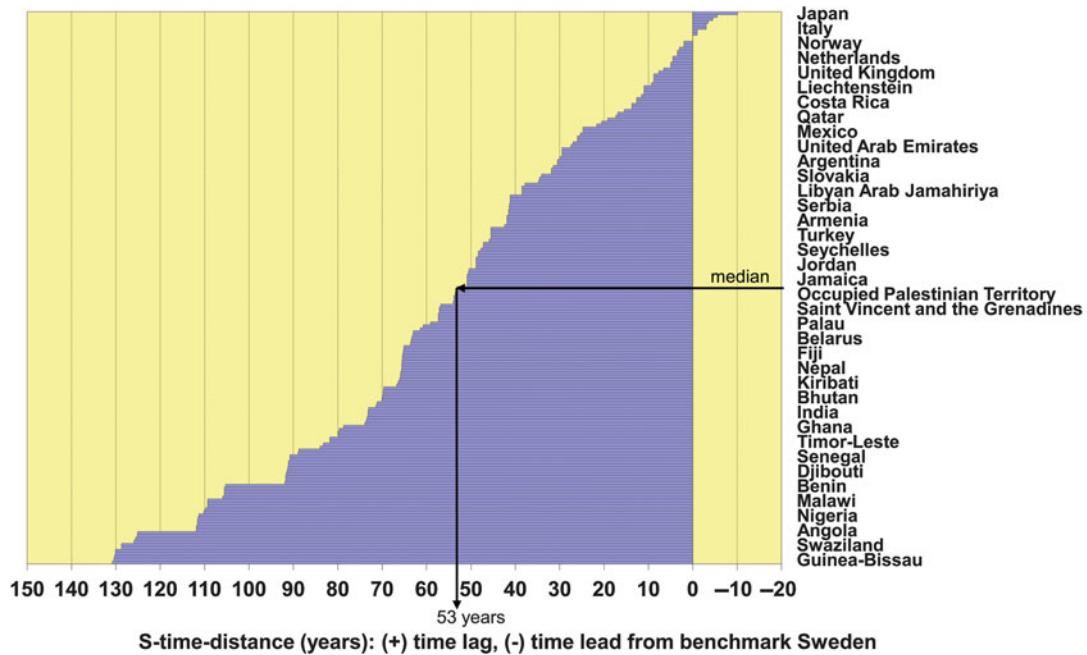
level in each country and the year when the same level was achieved in Sweden. Because of the high number of countries, the names on the vertical axis cannot be presented in full; usually only every fourth country name can be printed out (for life expectancy in Fig. 3, every fifth country name), while in these figures the values for all countries are calculated and visually included.

If we look at the gaps in GDP per capita, the story through the time-distance lens is as follows: the median value of time distance shows that one half of the countries (80 countries) were lagging Sweden by more than 74 years (26 countries even for more than 150 years). A conventional static statistical measure of world disparity ► [Gini coefficient](#) would be around 0.53. Both are valid, yet the time-distance picture tells an important understandable perspective of the situation. The present state of the art concentrating on static measures of disparity neglects this additional information available in time-series databases.

Another look at the degree of disparities in the world in Fig. 3 shows the situation with respect to life expectancy at birth as a very important indicator of well-being. Again, the time distance is the difference in years between the 2011 level of life expectancy at birth in each country and the year when the same level was achieved in Sweden. The median value of time-distance lag in 2011 behind Sweden is 53 years, which is smaller than that for the GDP per capita but still very substantial. Further details and similar analysis for infant survival rate, total telephones, and mobile telephones per 100 inhabitants are discussed in Sicherl (2012).

The Human Development Index (HDI)

► [Human development index](#) is a composite indicator with well-documented database covering three decades of trends, 1980–2011 (UNDP, 2011). Table 2 for HDI demonstrates the application of the time-distance method also as a simple visualization tool for many



Inter-temporal Aspect of Well-Being, Fig. 3 S-time-distance for life expectancy at birth relative to Sweden, 2011: difference in years between the 2011 level of life

expectancy at birth in each country and the year when the same level was achieved in Sweden. Source: Own calculation based on data from HDR 2011

units over time. It summarizes the analysis of HDI for 187 countries over that period by showing the results for 4 human development groups and 6 world regions as defined by the UNDP classification.

The observed level-time table-graph time-matrix format visually shows the range of values achieved by a given group over the period, from available data. This simple visualization allows for a quick level comparison of the situation in the world across the selected groups and three decades of development. The observation of how many steps over levels of the HDI was achieved for a given group is an additional visual indication of the dynamics that can be calculated as S-time-step measure mentioned above.

At a glance it can be observed that the inter-temporal view of the disparities in HDI values between the groups indicates a considerably larger degree of disparity than the static view. For instance, in 2011 the static assessment of the difference in the average value of HDI

between very high human development group and the high human development group is about levels of .88 and .74, or less than 20 %. This does not sound like very much. The time distance is more than 30 years as the present value of about .74 for the latter group is lower than the starting value of the former group in 1981, i.e., over that whole analyzed period.

Both 20 % static difference and time lag of more than 30 years are two relevant statistical descriptive measures of the situation with their own standing, but they lead to different evaluations of the degree of disparity if used alone. Only both together can contribute to a more realistic evaluation of the situation of the “overall degree of disparity.”

This approach could be extended also to further decompositions of HDI or other indicators if the relevant information over time would be available. Grimm, Harttgen, Klasen, et al. (2010) have analyzed quintile-specific HDI for selected countries to look at the inequality within these countries.

Inter-temporal Aspect of Well-Being, Table 2 Time matrix: time when a given HDI level was attained. A quick visual overview over all groups and regions (trends 1980–2011)

HDI 2011 Level	Very high HD	High HD	Medium HD	Low HD	Europe and Central Asia	Latin America and the Caribbean	East Asia and the Pacific	Arab States	South Asia	Sub- Saharan Africa	World
0.88	2007										
0.87	2003										
0.86	2001										
0.85	1998										
0.84	1996										
0.83	1994										
0.82	1992										
0.81	1990										
0.80	1988										
0.79	1985										
0.78	1983										
0.77	1981										
0.76											
0.75											
0.74		2010									
0.73		2008			2011						
0.72		2006			2005	2011					
0.71		2004			2004	2009					
0.70		2002			2002	2006					
0.69		2001			2001	2004					
0.68		1998			1997	2002					
0.67		1996			1990	2000					2010
0.66		1993			1987	1998	2011				2008
0.65		1991			1984	1996	2009				2005
0.64		1988			1982	1995	2008				2003
0.63		1985				1993	2007	2011			2001
0.62		1982				1991	2006	2008			1999
0.61						1989	2005	2007			1996
0.60						1987	2004	2005			1994
0.59						1984	2002	2004			1991
0.58						1982	2001	2002			1989
0.57							2000	2000			1986
0.56							1999	1999			1983
0.55							1997	1997			1981
0.54							1996	1996			
0.53							1995	1994	2009		
0.52							1994	1992	2008		
0.51							1993	1991	2006		
0.50							1991	1989	2005		
0.49							1990	1988	2004		
0.48							1989	1986	2003		
0.47							1987	1985	2001		
0.46							1986	1984	2000		
0.45							1985	1982	1998	2010	
0.44							1983	1981	1996	2008	
0.43							1982		1994	2006	
0.42							1980	1980	1992	2005	
0.41									1990	2003	
0.40									1989	2002	
0.39									1987	1999	
0.38									1986	1994	
0.37									1984	1988	
0.36									1982	1983	
0.35									1981		
0.34											
0.33											
0.32											

Source: Own calculations based on data from Human Development Report 2011, UNDP, Statistical Annex, Table 2, pp. 131–134

Inter-temporal Aspect of Well-Being, Table 3 S-time-distance in years for HDI from benchmark China

Human Development	Very high	Very high	Very high	High	High	High	Medium	Medium	Medium	Low	Low	Low	Low
HDI Rank	1	2	45	48	92	94	101	124	134	143	145	146	186
Country	Norway	Australia	Argentina	Uruguay	Turkey	Tunisia	China	Indonesia	India	Kenya	Pakistan	Bangladesh	Niger
0.68			-27	-21	-4	-3	0						
0.67			-28	-22	-4	-3	0						
0.66			-22	-4	-3	0	0						
0.65				-4	-4	0	0						
0.64				-5	-4	0	0						
0.63				-5	-5	0	0						
0.62				-5	-5	0	0						
0.61				-5	-5	0	7						
0.60				-5	-5	0	7						
0.59				-5	-5	0	7						
0.58				-5	-5	0	7						
0.57				-6	-5	0	7						
0.56				-7	-5	0	6						
0.55				-7	-5	0	5						
0.54				-7	-5	0	4	15					
0.53				-7	-5	0	2	14					
0.52				-8	-6	0	1	14					
0.51				-8	-6	0	1	14					
0.50				-8	-6	0	1	14	18	18	20		
0.49				-8	-6	0	1	13	18	17	19		
0.48				-7	-6	0	1	13	18	16	19		
0.47			-7	-6	0	0	13	18	16	18			
0.46				-5	0	-1	13	17	16	18			
0.45				-5	0	-2	12	16	16	18			
0.44					0	-2	12	1	16	18			
0.43					0	-2	11	0	15	18			
0.42					0	0	10	-2	13	18			
0.41					0	0	9	12	12	18			

S-time-distance (years): (-) time lead, (+) time lag from benchmark China

Source: Own calculations based on data from Human Development Report 2011, UNDP, Statistical Annex, Table 2, pp. 131–134

From the time matrix it is easy to calculate the S-time-step. The greatest dynamics of improvement was in the region East Asia and the Pacific where on the average something more than one year was needed to reach the next level of the HDI. China was a very important contributor to that, and Table 3 will show an example of S-time-distances from China over the analyzed period of three decades (over the levels of 0.41 to .68 attained by China). In each of the four groups, some first and last countries were selected to make a provisional assessment of the situation over the range for all 169 countries. China was closing the time-distance gap with the lower countries in the high human development group to very few years; it is still about 27 years

behind Argentina at the lower end of the very high group and many more years behind the leaders Norway and Australia. On the other end, the time lag behind China is 7 years for Indonesia, 15 years for India, 18 years for Kenya and Pakistan, and 20 years for Bangladesh.

HDI is an established composite indicator combining three selected subindices of indicators. These examples show an added possibility how to treat and interpret inter-temporal distances and dynamic changes in composite indicators. The inter-temporal measures of disparity could be also used for composite indicators for other types of units like gender or regions if time-series data would be available.

Discussion

Time is a concept or a measure and not a physical entity that can be stockpiled or bought on the Wall Street. Yet time is a tremendously important nonmaterial resource for individuals, communities, and nations. In the field of ► [inequality](#), it is important to emphasize that available time of 24 h per day for everybody is the most equally distributed resource in the world.

Time use is a very significant characteristic of people as consumers, producers, citizens, and human beings, which can be studied by time budgets. However, the importance of inter-temporal aspects of well-being cannot be determined by quantitative measures alone; they are to an important extent determined by subjective considerations. Even at the individual level, the time preference determines how people are comparing their well-being over time, e.g., how much income do they consume and how much they save for future needs like retirement. If they are not aware of the importance of time preference for their well-being over time, they may be struck by reality how the banks will routinely apply interest rate into payments of their loans. Inter-temporal considerations might be of importance even over a very long term as, e.g., parents might be considering the success of their children an important part of their well-being. Hope might be another element in subjective considerations over time.

There are many open issues of understanding of well-being, like philosophical theory or ► [subjective well-being](#), at the individual as well as at other levels. At the national level, either for individual indicators or composite indicators, indices, and notions, additional issues have to be discussed; the inter-temporal aspects of well-being are an integral part of such discussions.

Conclusions

Perceptions of well-being and progress are inherently subjective. An individual may assign different weights to various indicators of

well-being as well as to different measures referring to the same indicator. While the OECD “Your Better Life Index” (OECD, 2011a) is a tool that allows addressing differences in subjective opinions among fields of concern and indicators, a similar interesting question is the weight that people assign to the two dimensions of disparity (static measure and time distance) to arrive at an overall perception and evaluation of their position in society and globally.

Measuring broad notions such as well-being and progress also requires dealing with inequalities between rich and poor, between groups and communities at different geographic scales, ranging from the entire world to individual countries. Complementing the usual time-series data tables, the time-matrix format can condense such information covering many years and units in much smaller number of entries, which is a great advantage for presentation. The time distance as a descriptive measure of inter-temporal disparity complements existing static measures; it can also serve as an important element of building perceptions about disparities and as an introductory representation of the issues and hypotheses best suited for more in-depth examination and presentation.

Cross-References

- [Gender Equality](#)
- [Gini Coefficient](#)
- [Human Development Index](#)
- [Human Development Inequality](#)
- [Inequality](#)
- [Monitoring](#)
- [National Well-being Indicators](#)
- [Societal Progress](#)
- [Subjective Well-being](#)
- [Time Budget\(s\)](#)
- [Time Needed to Travel to Work](#)
- [Time Trade-Off](#)
- [Well-being and Progress Measurement](#)
- [Well-being of Nations](#)
- [Well-Being, Philosophical Theories of](#)

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Inter-university Consortium for Political and Social Research

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Synonyms

[Databases](#)

Definition

The ► [Inter-university Consortium for Political and Social Research](#) (ICPSR) was founded in 1962 by University of Michigan researcher Warren Miller with the goal of archiving and disseminating data from the American National Election Studies. It has since grown into the largest digital archive of social science data in the world, containing more than 500,000 discrete files. ICPSR's membership has also grown from the original group of 21 partner institutions to more than 700 members. ICPSR is a center within the ► [Institute for Social Research at the University of Michigan](#).

ICPSR hosts 16 specialized data collections on topics including mental health, substance abuse, aging, education, and terrorism, among others.

The consortium also provides numerous educational activities, including the Summer Program in Quantitative Methods of Social Research, which has been part of ICPSR since its founding. The Summer Program offers

a comprehensive curriculum of intensive courses in research design, statistics, data analysis, and social methodology.

Description

The Inter-university Consortium for Political and Social Research has been home to some of the pioneers of quality of life research, including ► [Angus Campbell](#) and Philip Converse, and is one of the primary repositories of digital research data on quality of life in the world.

ICPSR has been acquiring, preserving, and disseminating quantitative research data on quality of life almost since its founding in the early 1960s.

Some of the earliest quality of life survey data held by ICPSR resulted from the research of Converse and Campbell at the University of Michigan's Institute for Social Research.

Converse and Campbell, along with ISR researcher Willard Rodgers, authored the Quality of American Life surveys of 1971 and 1976, which were some of the first large-scale national studies that measured subjective well-being (Sirgy et al., 2006, p. 386).

ICPSR stores and disseminates data from those studies – but, in keeping with its educational mission, it also created an instructional subset of the data for use in undergraduate classrooms. Thus, ICPSR introduces generations of students not only to the basics of social science data analysis, but to quality of life research as well.

ICPSR also holds the entirety of the data from the ► [Detroit Area Studies](#) project, which collected data on quality of life in Detroit from 1952 to 2004. ICPSR first acquired data from the studies in the mid-1970s, when it obtained data files from surveys conducted between 1953 and 1971 (ICPSR Survey Research Archive Activity Report, 1974).

The value of these data can be glimpsed through utilization reports produced by ICPSR. According to these reports, the 53 datasets contained in the Detroit Area Studies were downloaded by more than 5,000

individual users between 2009 and 2011. ICPSR's Bibliography of Data-Related Literature shows that the Detroit Area Studies have been cited more than 750 times in peer-reviewed publications – a number that is likely to be an underestimate.

ICPSR's data holdings stretch back to the earliest days of quality of life research. The oldest data on quality of life at ICPSR date back to 1931 from the "New Survey of London Life and Labor" by Barry Eichengreen. And the consortium continues to collect present-day data from around the world.

Some of ICPSR's other notable datasets containing quality of life variables include:

- ► [Eurobarometer](#) surveys dating to 1974, including Central and Eastern Eurobarometers from the 1990s
- Afrobarometer data from as early as 1999
- Dozens of national public opinion polls collected by major media outlets
- Converse's "Americans' Use of Time" survey from 1965 to 1966, and others on this topic
- The Study of Women's Health Across the Nation (SWAN)
- The General Social Surveys (GSS)

All told, the archive contains more than 325 studies with some information under the "quality of life" subject heading. ICPSR provides services that facilitate cross-survey comparisons. For one thing, all datasets are available in the formats of the most popular analysis packages: Stata, SAS, and SPSS. Also, the Social Science Variables Database enables users to search for similar variables across datasets.

Cross-References

- [Campbell, Angus](#)
- [Data Analysis](#)
- [Detroit Area Studies \(DAS\)](#)
- [Eurobarometer](#)
- [General Social Survey](#)
- [Institute for Social Research Michigan](#)
- [Public Opinion](#)

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interval scale is not a true zero, and hence ratios of numbers on an interval scale are not meaningful. The customary example of an interval scale is temperature on the Celsius or centigrade scale for which there is an ordering and the intervals are equal, but a zero on the scale cannot be interpreted as an absolute zero at which thermal energy of matter vanishes. These textbooks, however, typically do not provide any historical context or details about interval scales.

Interurban Approaches: City Comparisons

- ▶ [Intra-urban and Interurban Quality of Life Approaches](#)

Interval Response Format

- ▶ [Response Format](#)

Interval Scale

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Synonyms

[Equal interval scales](#); [Scale, interval](#); [Scaling](#)

Definition

Nearly every introductory methodology textbook in the social sciences provides a simple definition of measurement as a “rule to assign numbers to attributes.” As such, these texts go on to describe an interval scale as one in which the rule of assigning numbers informs one of the order of the data points and the size of the intervals in between data points; however, the zero of an

Description

Although the methodology of measurement has a long history dating back, at least, to the work of Helmholtz in 1887, the issue of measurement came to the forefront of social science in 1932 when a committee was appointed by the British Association for the Advancement of Science (BAAS) to debate the definition and fundamental properties of measurement.

Implicit in its charge to the committee was the demarcation of science. Leading up to the work of the BAAS committee, an early characterization of measurement was as fundamental, derived, and extensive measurement. Fundamental measurement takes place at an early stage of scientific development. It is measurement that does not require prior measurements. Fundamental measurement is analogous to the primitives (i.e., the properties defining the structure or axioms) of a mathematical system. Derived measurement, on the other hand, takes place later in science and involves measurement defined in terms of fundamentally measured concepts. Extensive measurement was measurement involving empirically defined concatenation operations. The social sciences were perceived as devoid of such operations, and therefore, extensive (and by definition derived) or fundamental measurements were not possible. Given that extensive measurement was accepted as the only appropriate measurement by the BAAS committee, at risk was the social science’s claim to be scientific.

Stevens (1946, 1951) responded to the BAAS committee’s criticism of psychological

measurement in particular, by arguing that in measurement theory, the important thing was not the concatenation operations but rather the fact that continuous variables with such operations have a unique additive representation. Stevens called the scale based on this version of extensive measurement a ratio scale. He introduced the now widely known terms nominal, ordinal, interval, and ratio to refer to the families of scales, for which the basic empirical operations (rules for assigning numbers) were the determination of equality or labeling, the determination of order, the determination of equality of intervals, and the equality of ratios, respectively. He did not conceptualize measurement in terms of the particular details of any axiomatization of it, but, rather, he focused on the nature of the transformations taking one representation into another.

Although Stevens considered a scale to be a set of numerical assignments generated by a rule, he was not explicit as to the nature of the rule. This ambiguity left Stevens' measurement system somewhat ineffectual, and it did not allow any possible substantial theoretical progression as to the nature of measurement. Rather, Stevens' system served mostly heuristic value in gross scale classification. Later work by Scott and Suppes (1958), Adams (1966), Narens and Luce (1986), Luce, Krantz, Suppes, and Tversky (1990) challenged and built upon Stevens' initial statements about interval scales.

Cross-References

- ▶ [Guttman Scale](#)
- ▶ [Measurement Methods](#)
- ▶ [Nominal Scales](#)
- ▶ [Ordinal Alpha](#)

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Intervening Variable

- ▶ [Mediator](#)

Intervening Variable Analysis

- ▶ [Mediation Analysis](#)

Intestinal Neurosis

- ▶ [Irritable Bowel Syndrome](#)

Intimacy over 25 Years

- ▶ [Marital Adjustment over 25 Years](#)

Intimacy Sex Motives

- ▶ [Relationship Contingency and Sexual Satisfaction](#)

Intimate Partner Violence

- ▶ [Dating Violence](#)
- ▶ [Domestic Violence](#)
- ▶ [Partner Violence](#)
- ▶ [Violence Against Women](#)

Intimate Relations and Sexual Experiences

- ▶ [Relational Contributions to Optimal Sexual Experiences](#)

Intimidation at Work

- ▶ [Violence in the Workplace](#)

Intraclass Correlation Coefficient (ICC)

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Synonyms

[Intracluster correlation coefficient](#); [Intraunit correlation coefficient](#); [Variance partition coefficient](#)

Definition

The intraclass correlation coefficient is a measure of the correlation between individuals clustered within the same context. It is the proportion of the total unexplained variation in an outcome that is attributable to differences between the contexts.

Description

In hierarchical or multilevel data, units at one level (e.g., individuals) are clustered within units at a higher level (e.g., neighborhoods or health-care settings), also known as contexts. The intraclass correlation coefficient, ρ_I , provides a measure of the extent of clustering or of the importance of the contexts with respect to a particular variable and is defined as the variance between contexts divided by the total variance.

In the trivial two-level hierarchical linear model

$$y_{ij} = \beta_0 + u_{0j} + e_{0ij} \quad (1)$$

where y_{ij} is the response for individual i in context j , β_0 is the population mean, e_{0ij} is the individual residual, and u_{0j} is the contextual effect or residual, distributional assumptions (usually normality) are made about both sets of residuals:

$$\begin{aligned} u_{0j} &\sim N(0, \sigma_{u0}^2) \\ e_{0ij} &\sim N(0, \sigma_{e0}^2) \end{aligned}$$

The total variance in the y_{ij} is therefore given by $\sigma_{u0}^2 + \sigma_{e0}^2$ so that

$$\rho_I = \sigma_{u0}^2 / (\sigma_{u0}^2 + \sigma_{e0}^2) \quad (2)$$

This correlation coefficient will lie between 0 and 1. If the contexts are unimportant, then there will be no variance between contexts so $\rho_I = 0$; if there is no variability within contexts, then $\rho_I = 1$. The multilevel regression equation given by Eq. 1 can be extended to include individual and contextual covariates in which case the intraclass correlation coefficient gives the correlation between individuals within contexts after adjustment for these covariates.

The intraclass correlation coefficient is related to the design effect D , the ratio of the sample size needed when a study has a clustered design to the sample size needed for a simple random sample, through the equation

$$D = 1 + (n - 1)\rho_I$$

where n is the number of individuals in each cluster. If there is just one individual in each context ($n = 1$) or there is no clustering within contexts ($\rho_I = 0$), then $D = 1$ and the study design is equivalent to a simple random sample (Kerry & Bland, 1998). In other situations the effect of the clustering is to reduce the effective sample size, meaning that a larger sample is required to have the same power as a simple random sample.

When a discrete response model is appropriate for the variable of interest y_{ij} , then the calculation of ρ_I differs. Snijders and Bosker (2011) provide alternative formulations of

$$\rho_I = \sigma_{u0}^2 / (\sigma_{u0}^2 + \pi^2/3) \quad (3)$$

for a multilevel logistic regression model and

$$\rho_I = \sigma_{u0}^2 / (\sigma_{u0}^2 + 1) \quad (4)$$

for a multilevel probit regression model based on a latent variable approach. Goldstein, Browne, and Rasbash (2002) compare alternative measures for estimating ρ_I including the development of a general simulation-based variance partition coefficient.

Cross-References

- ▶ [Correlation Coefficient](#)
- ▶ [Hierarchical Linear Modeling](#)
- ▶ [Mixed Effects Models](#)
- ▶ [Power Analysis](#)

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Intracluster Correlation Coefficient

- ▶ [Intraclass Correlation Coefficient \(ICC\)](#)

Intra-household Arrangements and Well-Being

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Definition

The family constitutes a central institution in most social organizations; it is much more than a group of people sharing a common roof. There are different theories explaining the origin and functioning of the family (Hart 1990; Rosenzweig & Stark 1997; Smith, Hamon, Ingoldsby, & Miller, 2008; Vogel, 2003; White & Klein, 2007). The characteristics of families and the – mostly informal – norms bonding family members do differ across – and even within – countries, and this has important consequences for people's well-being.

Household arrangements do refer to the specific size and demographic composition of the family (Rojas, 2007). There may be many household arrangements, for example: families may be nuclear (man/husband/father, woman/wife/mother, and children), extended (incorporating close relatives such as cousins, aunts, grandparents, uncles, and so on), single-parent led (lacking a father or a mother), having no children, and so on. The number, age-structure of members, and their gender composition are also important characteristics regarding household arrangements. There are substantial household-arrangement differences across families and along countries and cultures.

Due to its nature, the family requires from its members to pool up personal economic and

noneconomic resources; it also requires some division of labor in the performance of different household tasks and activities. Families do follow rules and conventions in pooling up their members' resources, in allocating their household responsibilities and chores, and in sharing the benefits from their activity among all members. These rules and conventions are mostly informal, but some formal norms may also exist. Intra-household arrangements do refer to these norms and conventions, and they may differ across families and along countries and cultures.

Intra-household arrangements address issues such as which family members do contribute with effort and resources, which members contribute the most and which the least, how resources are pooled up, what are the relevant resources in the family, how family tasks and responsibilities are allocated among family members, and how the benefits from all these actions are distributed or shared among family members. It is clear that these issues are crucial for the well-being of each member of the family. Because most people live in families, the study of intra-household arrangements is crucial to understanding people's well-being.

Description

The literature on intra-household arrangements has stressed that the family is a *black box*: a difficult-to-observe process in which household tasks and responsibilities are allocated, resources are pooled up, and personal benefits are obtained takes place within the family. The literature emphasizes that inside this *black box*, there may be communitarian processes as well as altruism, cooperation, bargaining, and conflict (Bergstrom, 1997; Bengtson, Acock, Allen, Dilworth-Anderson, & Klein, 2006; Chibucus, Leite, & Weis, 2004; Rojas, 2006, 2010; Vogel, 2003).

It is possible to conceive different kinds of intra-household arrangements and to construct general categories. In an extreme case, it would be possible to imagine an *individualistic intra-*

household arrangement, where family members do not pool up their personal resources, no division of labor is involved, and each member exclusively receives the benefits from their own actions (Rojas, 2006). In this situation, it seems fair to say that family members are acting as housemates; they do share the same roof but little more.

Communitarian intra-household arrangements do imply that resources and responsibilities are distributed in such a way that all family members end up enjoying relatively similar levels of well-being (Rojas, 2006). It is important to remark that a communitarian intra-household arrangement does not necessarily imply an egalitarian distribution of commodities nor an egalitarian distribution of tasks and responsibilities, but a distribution of commodities, tasks, and benefits in such a way that well-being ends up being distributed in an egalitarian way among family members.

Altruistic models of the family state that intra-household arrangements imply for some members sacrificing for the benefit of others (Becker, 1973, 1974, 1981). Altruistic members may pool up more resources, may undertake more household responsibilities and chores, and may even look for less personal benefits so that other family members enjoy greater well-being. In this case, the distribution of well-being within the household is not egalitarian, with altruistic members enjoying lower well-being levels than other family members.

Cooperative-bargaining models of the family state that the distribution of well-being among family members does depend on their bargaining power (Lundberg & Pollak, 1993, 1996; Manser & Brown, 1980; McElroy, 1990; Pollak, 1994). Those members with greater bargaining power end up enjoying greater well-being, either because they pool up less resources, perform less household tasks and responsibilities, or receive greater personal benefits. Bargaining power emerges from the realistic threat of leaving the family in case of not receiving enough benefits or of being faced with substantial sacrifices. The family is seen as the result of members unilaterally deciding

to remain within the arrangement because it is on their benefit; but members are willing to leave if they find out that leaving implies greater well-being than staying. This view implies an intra-household arrangement that ends up providing greater well-being to those with greater bargaining power.

The study of intra-household arrangements is crucial to understand the well-being enjoyed by each member of the household. Different intra-household arrangements lead to different well-being distributions within the family, all derived from the same endowment of household resources. The tradition has been to study the well-being of each household member on the basis of the observed household resources; however, household resources are not sufficient to assess the well-being of each household member. Furthermore, observing the distribution of household commodities and responsibilities is also insufficient to assess the well-being of each household member.

There is a tradition, mostly in economic theory, of presuming people's well-being on the basis of observable resources such as household income (Bourguignon, Browning, Chiappori, & Lechene, 1994; Haddad, Hoddinott, & Alderman, 1997; Lazear & Michael, 1988; Thomas, 1990, 1993a, b). This tradition faces many problems; one problem is that income is not the unique resource nor a crucial determinant of well-being (Rojas, 2011). Another problem is that income is a household-level variable, while well-being is a personal-level variable. Economists have often addressed this problem by assuming that the benefits from a household income are distributed in an egalitarian way to all household members – which basically implies assuming that a *communitarian intra-household arrangement* prevails within the family. However, if this is not the case, then economists would end up making wrong presumptions about the (economic) well-being of persons on the basis of their household income; it could be that some family members in a low-income household enjoy high (economic) well-being or that some family members in

a high-income household enjoy low (economic) well-being levels.

Subjective well-being has allowed for directly studying the nature of intra-household arrangements on the basis of the well-being distribution within the family rather than on the basis of observed distribution of – presumed – resources. Following a SWB approach, Rojas (2006, 2010) has found that families in Mexico do follow mostly communitarian and altruistic intra-household arrangements. At low-income levels, altruism shows up and parents generally enjoy lower satisfaction than children, while at higher income levels, communitarian arrangements prevail.

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Intraunit Correlation Coefficient

- [Intraclass Correlation Coefficient \(ICC\)](#)

Intra-urban and Interurban Quality of Life Approaches

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Synonyms

[City rankings](#); [Interurban approaches](#); [city comparisons](#)

Definition

One way of distinguishing approaches to ► [quality of life](#) in ► [urban areas](#) is to look at the spatial scale of investigation. Some approaches compare the quality of life of different cities (interurban approaches), and others focus on one city and analyze the variation of quality of life within this city (intra-urban approaches).

Interurban quality of life approaches address cities as points in space; a city is treated as a unity and is awarded a single ► [quality of life index](#) (which may consist of subindexes). Within interurban approaches, there are different spatial levels of analysis: from the international, interregional, and national to the regional level.

Intra-urban approaches focus on the analysis of one city. Thereby, they can focus on the whole city, districts of the city, or on the microlevel of a city (area/neighborhood/household level, etc.).

Description

Separating approaches to quality of life defining urban areas into interurban and intra-urban studies is a way of distinguishing them based on the spatial scale of comparison, but also according to the linked types of measurement, methods, and ► [urban quality of life estimates](#) employed.

Interurban Approaches to Quality of Life

Interurban approaches distinguish differences between the quality of life of cities on different scales. Examples for comparisons at the international level are:

- The annually published “Quality of Living Worldwide City Rankings Survey” of the Mercer Human Resource Consulting that ranks 221 cities worldwide on the basis of 39 key indicators grouped in 10 categories (political and social environment, economic environment, sociocultural environment, health and sanitation, schools and education, public services and transportation, recreation, consumer goods, housing, natural environment) (Mercer, 2011)
- The biannual “Global Liveability Report” by the Economist Intelligence Unit that lists 140 cities based on a score calculated from over 30 qualitative and quantitative factors across five broad categories (stability, health care, culture and environment, education, infrastructure) (Economist Intelligence Unit, 2012)
- Sufian’s (1993) work on the quality of life in the world’s largest metropolitan areas, which employs ten different variables, of which nine are social variables and one environmental

At the interregional scale, for example, Zolnik (2004) compared the quality of life of Canadian and US cities. Overall, most interurban studies focus on comparisons of quality of life differences between urban areas of one country. One of the earliest of such works is Liu’s (1975) ranking of US-American cities. One of the most prominent works is the Places Rated Almanac, which contains a ranking of US cities based on nine factors (climate, housing, health care, environment, crime, transportation, education, recreation, the arts and economics; however, specific indicators have changed since the first version published in 1981) (Boyer & Savageau, 1981). Other examples are Giannias (1998) ranking of 13 Canadian cities and Berger, Blomquist, and Peter’s (2003) comparison of 953 Russian cities through a group of eleven amenities. Recently, Higgins and Campanera (2011) delineated the results of two different quality of life measurements over time, one undertaken in 1988/1989 and the other in 2008/2009, in English cities with

the aim to evaluate in how far sustainability issues have been regarded in both studies. One example of a regional interurban quality of life approach is Ou et al.’s (2012) study on three industrial cities in northeast China using the ► SF-36 Health Survey.

Most of the research on interurban quality of life has concentrated on the so-called ► objective quality of life using objective measures, that is, social and environmental indicators, derived mostly from secondary data sets. In many interurban studies, factorial designs are used to investigate interurban differences in quality of life. A specific type of urban factorial ecology approaches is the neoclassical market/resident approaches (e.g., Blomquist, Berger, & Hoehn, 1988; Stover & Leven, 1992), which assume that the wage rate or rental price of land reflects the level of the local amenities that people can afford and, therefore, their quality of life. Approaches of the urban factorial ecology have been significantly criticized, specifically due to the problems and shortcomings of indirect measurement and the arbitrariness of the methods of the multivariate statistics (cf. Randall & Williams, 2001; Rogerson, 1999).

A major emphasis has been laid on the attempt to rank cities through livability indexes. This process has been substantially fuelled by the success of the Places Rated Almanac, which stands for the first serious attempt to popularize a statistical ranking of metropolitan areas. It entailed a wave of city rankings, scientific as well as popular scientific rankings (cf. ► city competitiveness and quality of life).

Intra-urban Approaches to Quality of Life

Intra-urban quality of life approaches focus either on the whole city (e.g., Lever, 2000: Mexico city; Randall & Morton, 2003: Saskatoon, Canada), districts of cities, or on different microlevels of a city (e.g., neighborhoods: Williams et al., 2001; factories in the city of Shenzhen, China: Zhu et al., 2012).

In comparison to interurban approaches, ► subjective indicators are used much more often in intra-urban quality of life measurement so far. Originating in psychology, researchers

increasingly called for the integration of subjects' personal perception in the evaluation of urban quality of life. It is considered that on the grounds of different personal backgrounds, individuals could have quite different views of what is important for their quality of life. These indicators have the goal to assess the subjective evaluation of different aspects of the environment, place, images, and the individual evaluation of objective indicators or to integrate the person characteristics of a subject in order to evaluate their influence on the individual's perception of the quality of life. Yet, approaches integrating direct and indirect measurements and objective and subjective indicators are dominating research in intra-urban quality of life (e.g., Lever, 2000; Randall & Morton, 2003).

In addition, some intra-urban studies underline their applied approach through different participatory models. Williams et al. (2001), for example, who made an intra-urban comparison of quality of life for three sets of neighborhoods in Saskatoon, integrated community representatives and held a number of forums with the community in order to gather feedback on the research process and on the gathering instruments and to give community members the chance to contribute ideas and suggestions.

Discussion

Interurban and intra-urban approaches to quality of life substantially differ in terms of the perspectives taken and methods used.

While interurban quality of life studies are necessary for comparisons and planning at international and national levels, they often suffer from a lack of comparability of the data – especially in terms of comparisons across nations – and in terms of problems with the collection of the data. In addition, commercial city rankings have become quiet influential and dominant among interurban approaches. Especially in the USA, their effect on the public opinion and measures must not be underestimated. They reinforce the marketing of cities and enhance city competition while determining the competitiveness of the cities at the same time. They have been criticized for their "reductionist view"

(Rogerson, 1999: 970) and their "power laden, political nature" McCann (2004: 1911).

In the early 1980s, Helburn (1982: 488) pointed out that "Given time, place and society, both necessities and amenities are culturally defined." Hence, a person's perception of quality of life is also shaped by the norms and the values of the society that the person lives in and at the smaller scale by the norms and values of a community or social group the person considers himself/herself part of. Intra-urban approaches at the district or the microscale make this differentiation (e.g., Williams et al., 2001). Interurban approaches neglect differences at this scale, and, more important, they neglect societal or cultural differences when comparisons across borders are made. Measures to improve urban quality of life have to be problem oriented and to be adapted to the specific situation in a certain city, district of city, or neighborhood – for which intra-urban comparisons are the better points of reference. Yet, due to the high costs and high expenditure of time of direct measurement, it is unlikely to be conducted at a broader scale and in general for interurban comparisons. However, despite the call for direct measurement, also only few intra-urban works succeeded in including the behavior-/perception-related evaluation of quality of life adequately.

Research on urban quality of life has focused on developed countries, where quality of life has been mainly associated with amenities and disamenities in cities. In opposition, research in ► developing countries and newly industrializing countries on the quality of urban life is often rather targeting at ► basic needs and livelihoods of people, for example, with regard to their access to water, health facilities, education, or a daily bowl of rice. More specifically, the vast majority of research on urban quality of life stems from the Anglo-American space; it has focused on an analysis of the well-being of people of this space and has circled around notions of the term quality of life as developed in this part of the globe. Yet, the number of papers dealing with research in other areas of the globe has increased lately, with a particular rise in the number of works on China (e.g., Zhu et al.'s (2012) work on

Shenzhen, Ou et al.'s (2012) study on Shenyang, Dandong, and Fuxin, China).

Reports on the implementation of measures and policies to improve urban quality of life and their success are rare. Necessary for the latter is a comparative analysis of the development of quality of life over a time span using the same measurement tools to grant comparability of the results.

Besides achieving higher urban quality of life, keeping this standard of quality of life is another issue, which is intrinsically interwoven with the achievement of ► **sustainability** and Sustainable Cities. Whereas approaches to measure sustainable development started to include quality of life indicators (Flynn, Berry, & Heintz, 2002), urban quality of life studies included sustainability indicators in general and ► **urban sustainability indicators** in particular rarely so far. There is especially the need to further integrate issues of economic and social sustainability in analysis of urban quality of life (cf. Higgins & Campanera, 2011).

Cross-References

- **Basic Needs**
- **City Competitiveness and Quality of Life**
- **Defining Urban Areas, Quality of Life**
- **Environmental Amenities and Disamenities**
- **Factorial Design**
- **Livability Index**
- **Objective Quality of Life**
- **Quality of Life**
- **SF-36 Health Survey**
- **Subjective Indicators**
- **Sustainability**
- **Urban Areas**
- **Urban Life, Quality of**
- **Urban Quality of Life Estimates**
- **Urban Sustainability Indicators**

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Intrinsic and Extrinsic Aspirations

- ▶ Intrinsic and Extrinsic Values

Intrinsic and Extrinsic Life Goals

- ▶ Intrinsic and Extrinsic Values

Intrinsic and Extrinsic Values

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Synonyms

Intrinsic and extrinsic aspirations; Intrinsic and extrinsic life goals

Definition

Intrinsic and extrinsic values are relatively stable factors that inform the development and pursuit of ▶ life goals, or aspirations, which organize and direct behavior over extended periods of time. The pursuit and attainment of different types of values may contribute to or detract from psychological, social, and physical ▶ wellness.

Description

The ▶ life goals, or aspirations, that people pursue (and sometimes attain) organize and direct their behavior over extended periods of time. In this regard, value orientations are relatively stable factors that shape the life course and, indeed, may contribute to or detract from psychological, social, and physical ▶ wellness. It is interesting to note, as well, that whereas some researchers have taken a descriptive approach in charting universal aspects of the content and structure of human strivings (Schwartz, 1992), others have taken a prescriptive approach in suggesting that certain types of values are more likely than others to facilitate ▶ well-being. In other words, not all aspirations are likely to contribute to psychological, social, and physical ▶ health even when those goals are attained.

One perspective that has formulated predictions about the correlates associated with the pursuit and attainment of different types of values is derived from ▶ self-determination theory (Deci & Ryan, 2000), an approach to human ▶ motivation that recognizes the functional significance of aspirations in people's lives. This line of research began with studies by Kasser and Ryan (1993), who found that people who held financial success as a more central aspiration than other self-relevant values reported a variety of adverse consequences for health and wellness, including lower levels of ▶ self-actualization, vitality, global functioning, and social productivity, as well as higher levels of depressive symptoms, ▶ anxiety, and behavior disorders. Subsequent to this initial work, Kasser and Ryan (1996) examined seven life goals and found factor analytic evidence for the existence of two higher-order categories of values. One factor, which included the values for ▶ personal growth, close relationships, community involvement, and physical health, was labeled intrinsic because its goals are expressive of humans' organismic growth tendency. The second factor, which included the values for wealth, fame, and an appealing image, was labeled extrinsic because its goals have an outward focus and emphasize external indicators of worth.

From the perspective of self-determination theory, these different types of values can also be distinguished according to their association with satisfaction of the basic psychological needs for autonomy, ► competence, and relatedness (Ryan, Sheldon, Kasser, & Deci, 1996), as intrinsic aspirations are theorized to afford satisfaction of the basic psychological needs, whereas extrinsic aspirations are theorized to be unassociated with basic psychological need satisfaction. It is important to note, as well, that the structural distinction between intrinsic and extrinsic values has been observed in 15 cultures across the world (Grouzet et al., 2005).

Beyond a focus on the structural distinction between intrinsic and extrinsic values, research has examined the correlates associated with the pursuit of different types of life goals (for a review, see Kasser, 2002). This burgeoning corpus of empirical findings has shown that people who place strong importance on intrinsic (relative to extrinsic) values report higher levels of well-being and lower levels of ill-being (Kasser & Ryan, 1996), whereas those who place strong importance on extrinsic (relative to intrinsic) values report higher levels of engagement in risk behaviors (Williams, Cox, Hedberg, & Deci, 2000). It is interesting to note that the values people pursue not only affect their psychological and physical wellness but their social functioning as well. For instance, people who place strong importance on extrinsic (relative to intrinsic) values endorse attitudes aligned with social dominance and racial ► prejudice (Duriez, Vansteenkiste, Soenens, & De Witte, 2007), report lower levels of empathy (Sheldon & Kasser, 1995), and report higher levels of greed yet produce less profit for their group in a simulated resource management game (Sheldon & McGregor, 2000). In contrast, people who place strong importance on intrinsic (relative to extrinsic) values report higher levels of ecologically responsible behavior (Brown & Kasser, 2005). It is important to note, as well, that the pursuit of extrinsic (relative to intrinsic) aspirations has been shown to yield deleterious consequences even for individuals who are in contexts that may promote such values, including adult

employees (Vansteenkiste et al., 2007), business students (Kasser & Ahuvia, 2002), and law students (Sheldon & Krieger, 2004).

Other research has examined the correlates associated with the attainment of different types of life goals. Kasser and Ryan (2001) found that people who attain intrinsic (relative to extrinsic) values report higher levels of well-being and interpersonal ► relationship quality, as well as lower levels of ill-being. It is notable, as well, that a similar pattern of findings has been observed in Russia (Ryan et al., 1999). Among a sample of senior citizens, Van Hiel and Vansteenkiste (2009) found that people who attain intrinsic (relative to extrinsic) values report higher levels of well-being, ego integrity, and death acceptance, as well as lower levels of ill-being, despair, and death anxiety. In contrast, people who attain extrinsic (relative to intrinsic) values report higher levels of despair and lower levels of death acceptance. Niemiec, Ryan, and Deci (2009) followed college graduates for one year and found that attainment of intrinsic values related positively to well-being and negatively to ill-being, whereas attainment of extrinsic values was unrelated to well-being and actually contributed to ill-being. Importantly, the salubrious correlates associated with the attainment of intrinsic values were explained (mediated), in part, by satisfaction of the basic psychological needs for autonomy, competence, and relatedness.

Taken together, this theory and research on intrinsic and extrinsic values suggests that not all aspirations contribute to psychological, social, and physical health even when those goals are attained. Indeed, such findings provide an important qualification to the general control theory (Carver & Scheier, 1981), goal-setting theory (Locke & Latham, 1990), and expectancy-value theory (Eccles & Wigfield, 2002) views that attainment of valued goals is conducive to health and wellness. In line with predictions derived from self-determination theory, this growing body of research suggests that the pursuit and attainment of intrinsic (but not extrinsic) values are associated with psychological, social, and physical wellness, as only intrinsic

aspirations afford satisfaction of the basic psychological needs for autonomy, competence, and relatedness.

Cross-References

- [Anxiety](#)
- [Competence](#)
- [Ecological Footprint](#)
- [Factor Analysis](#)
- [Health](#)
- [Life Goals](#)
- [Motivation](#)
- [Personal Growth](#)
- [Prejudice](#)
- [Relationship Satisfaction](#)
- [Self-actualization](#)
- [Self-determination Theory](#)
- [Well-being, Philosophical Theories of](#)
- [Wellness](#)

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Intrinsic Motivation

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Synonyms

Enjoyment; Flow; Interest

Definition

Intrinsic motivation, which is the motivational component of people's natural proactivity, refers to doing an activity because it is interesting, enjoyable, and inherently satisfying of their basic (i.e., innate and universal) psychological needs. Intrinsic motivation is often contrasted with various forms of extrinsic motivation on a continuum of self-determined regulation (Ryan & Deci, 2000). When intrinsically motivated, people's psychological need satisfaction derives directly from the target activity, rather than from satisfaction of physiological needs (i.e., drives) or from some future satisfaction contingent on separable consequences such as rewards. Thus, the word "intrinsic" in the term intrinsic motivation refers both to people's inherent activity aimed at providing satisfaction of their inherent psychological needs and to the target activity itself being rewarding to them.

Description

History. The concept of intrinsic motivation (IM) in psychology can be traced back to two

seminal papers from the 1950s, which argued for a different kind of motivation, one that would complement the kind of motivation derived from homeostatic physiological drives (e.g., hunger, thirst, and the avoidance of pain). Both Harlow (1953) and White (1959) postulated that this new form of motivation could be used to account for play, exploration, and a variety of other behaviors that do not require reinforcement for their maintenance. The introduction of the concept of IM required a major reformulation of motivation theory, as previous theories [e.g., Hull's (1943) drive-reduction theory and Skinner's (1953) operant theory] dictated that the nature of organisms was exclusively passive and mechanistic, whereas the concept of IM implies that organisms are also active and growth-oriented.

IM and Psychological Needs. White (1959) further postulated that this kind of motivation (now referred to as intrinsic motivation) is initiated and sustained by the positive feeling of effectance that follow from competent interactions with the environment (as such, White referred to this kind of motivation as "effectance motivation"). Later motivation theorists extended this line of thinking, arguing that intrinsic motivation is fuelled by an organism's propensity to seek out psychological need satisfaction and identifying effectance (or competence) as one of the basic psychological needs. When people feel as though they are being challenged to extend their skills, they experience satisfaction of the need for ► competence. According to ► self-determination theory, other basic psychological needs include needs for autonomy and relatedness (Deci & Ryan, 1985; Ryan & Deci, 2000). Autonomy is characterized by feeling as though one's behavior is freely chosen and endorsed (see also ► perceived freedom), rather than pressured or coerced (de Charms, 1968). Relatedness is characterized by feeling connected to others and by caring and being cared for in the context of a trusting relationship (see also ► sense of belonging). Self-determination theorists argue that when intrinsically motivated, people's behavior helps to satisfy one or more of the three psychological

needs (autonomy, ► **competence**, or relatedness) and to be experienced as interesting and enjoyable.

Outcomes Associated with IM. Intrinsic motivation has been consistently associated with a number of important outcomes. Affectively, IM is closely related to elevated mood or ► **positive affect**. The concept of ► **flow** is considered an intense experience of intrinsic motivation that corresponds with a high degree of task immersion and concentration, a loss of self-consciousness, a distorted sense of time, and a subjective effortlessness (Csíkszentmihályi, 1990). Flow, like intrinsic motivation, involves being attracted to optimally challenging activities. Both flow and intrinsic motivation, more broadly, have also been associated with enhanced creativity and cognitive flexibility across a wide variety of contexts, including the visual arts, music, writing, and invention (Amabile, 1996). Another set of outcomes that have been closely related to IM concern learning (in and out of formal education contexts). To summarize these findings, IM tends to lead to deeper processing of material, heightened conceptual understanding, and better long-term retention in memory (Reeve, 2002).

IM and Development. From the perspective of human development, intrinsic motivation is understood to play a vital role in terms of initiating both physical and psychological growth. That is, many of the behaviors (e.g., exploration, challenge seeking, and human interaction) that are prototypic of intrinsic motivation are also closely associated with healthy physical and psychological maturation over the long run, building physical strength and facilitating psychological integration and ► **self-actualization**.

The Undermining Effect. One of the most well-studied phenomena associated with intrinsic motivation concerns the influence of extrinsic rewards on intrinsic motivation. Indeed, over one hundred experiments have been run exploring this effect (Deci, Koestner, & Ryan, 1999). In general, the findings from these studies indicate that tangible extrinsic rewards (e.g., money, awards, tokens) tend to undermine intrinsic motivation, particularly when the rewards are contingent, expected, and salient, and thus are

experienced as controlling and pressuring (thereby thwarting one's psychological need for autonomy). In contrast, positive feedback, which is sometimes referred to as verbal rewards, typically enhances people's intrinsic motivation. Quality and quantity of rewards have been shown to be less relevant than how the reward is framed (Morgan, 1984). Because subjective interpretation of rewards is considered critical to whether the reward will or will not undermine intrinsic motivation, characteristics of the individual are also relevant. Hagger and Chatzisarantis (2011) recently demonstrated that causality orientations moderate the undermining effect of rewards on intrinsic motivation, such that those who tend to see the world as controlling are more aversely influenced by rewards. Other factors, in addition to extrinsic rewards, that have been shown to undermine intrinsic motivation are externally imposed deadlines, surveillance, evaluation, and goal imposition.

Assessment of IM. Intrinsic motivation has historically been measured in two ways, either via subjective self-report or via objective behavior using a free-choice paradigm. Self-reported intrinsic motivation can be measured at state- or activity-level (e.g., during an activity), at the domain-level (e.g., in school or at work), and at the global- or person-level (e.g., in general or in one's life) (see Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation). The intrinsic motivation inventory (IMI) is a well-validated, multidimensional measurement device for assessing participants' subjective experience related to intrinsic motivation for a target activity in laboratory experiments. The instrument assesses participants' interest/enjoyment (which is the indicator of intrinsic motivation), as well as perceived competence, effort, value/usefulness, felt pressure and tension, perceived choice, and relatedness while performing a given activity, each providing a subscale score. The IMI and many other context-specific measures of IM are publically accessible for research purposes via the self-determination theory website (<http://www.selfdeterminationtheory.org/questionnaires>). Event-level intrinsic motivation (and flow) is also commonly measured in the

field using ► **experience sampling** (with self-report data entered into an electronic handheld device or paper diary).

A complement to self-report measures of IM is objective measures of behavior using the free-choice paradigm. This paradigm entails providing people with a variety of activities to choose from (e.g., magazines, music, games) including a target activity (e.g., a puzzle) for a fixed period of time. Participants are typically told a cover story during this free-choice time in order to make them believe that no one is paying attention to their behavior (e.g., before leaving the room, an experimenter might explain to a participant that he/she needs 10 min to set up the next part of their study but that the participant may feel free to do any or none of the available activities while waiting). Participants' behavior is then surreptitiously observed, and time spent on the target activity is assessed as an indicator of IM.

Recently, investigators have begun to explore and identify the neural correlates of IM. Murayama, Matsumoto, Izuma, and Matsumoto (2010) used a modified free-choice paradigm and replicated the classic undermining effect following performance-contingent monetary rewards, while also tracking its neural correlates using functional MRI. Undermined IM was correlated with decreased activity in the anterior striatum and prefrontal areas, leading the authors to postulate that the corticobasal ganglia valuation system is associated with the undermining of IM through the integration of extrinsic reward value and intrinsic task value.

Discussion. The concept of intrinsic motivation represented a paradigm shift in terms of motivation theory when first introduced in the 1950s (Harlow, 1953; White, 1959). Since that time, the IM concept has received considerable attention, both in basic and theory-oriented research and applied research, in a wide range of contexts that include educational, industrial-organizational, sports and leisure, medical, and virtual (i.e., videogames and virtual reality). And the resulting findings from IM-oriented research have broad implications for public policy and regulation at nearly all levels of governance and for improving ► **quality of life (QOL)**.

Cross-References

- Competence
- Enjoyment
- Experience Sampling
- Flow
- Perceived Freedom
- Positive Affect
- Quality of Life (QOL)
- Self-Actualization
- Self-Determination Theory
- Sense of Belonging

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Introspective Persons

► Introvert/Introversion

Introvert/Introversion

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Synonyms

Introspective persons; Privacy preferences; Shyness; Solitary; Withdrawn persons

Definition

Personality trait characterized by a reserved attitude, shyness, and a preference for solitude and independence. Introverted people need privacy and intimacy. They tend to remain in the background in debates, participating very little in meetings, preferring to work alone, and spending more time with themselves than with others. They adapt easily to monotonous, routine tasks or those requiring precision or sustained attention. They like quiet places, away from hustle and bustle and other people, avoiding excessively noisy or overly stimulating situations. They are more unhurried, calm, and relaxed people, although a combination of this with other personality traits, such as emotional instability, which increases the sensitivity of the neuronal mechanisms involved in developing learning fear, may result in anxiety, sadness, or fear of speaking in public.

Description

Introversion, along with its opposite, extraversion, constitutes one of the main personality traits. There is widespread consensus that these two personality traits may be conceived as the same bipolar character trait. From this perspective, we find introversion at one end of the spectrum and extraversion at the other. In the middle, or at the point of balance, we find ambiverted people, who represent most of the population and exhibit tendencies toward both personality traits. The first person to use the term introversion was Carl Gustav Jung (1921), when describing one of the main attitudes of personality. According to Jung, introverted people direct their energy inwardly, as opposed to extraverted people, who direct it to the outside world. That is, the former are orientated by subjective factors. Jung postulated that those with an introverted disposition see exterior conditions but select subjective factors as being decisive.

One of the models used to study introversion in most depth is Eysenck's biosocial model, which links introversion with the phlegmatic (pacific, controlled, calm, etc.) and melancholic (sad, solitary, pessimistic, etc.) temperament described by Galen (129–200 AD). In the first formulation of his theory (1957), Eysenck related the dimension of introversion to the processes of excitation and inhibition described by Pavlov and Hull. According to this theory, introverted people are characterized by having an excitatory potential, which is strong and appears quickly, and a slow reactive inhibition, which is weak and dissipates quickly. Later, in 1967, Eysenck reformulated his theory (the theory of cortical activation) and linked the dimension of introversion to levels of cortical arousal, meaning that introverted people have a higher level of cortical activity (greater arousal) than extraverted people and consequently a tendency to avoid stimulation. These differences between introverted and extraverted people are determined, according to Eysenck, by greater activity of the reticulo-thalamo-cortical pathways. By contrast with extraverted people, it has been observed that among other characteristics, introverted people perform better in complex cognitive tasks carried

out in situations or contexts with distracting stimuli, such as music or background noise; have a higher skin conductivity in the face of rewarding and punishing stimuli, a lower pain threshold or greater tolerance of sensory deprivation, and greater cardiovascular reactivity in relation to effort; are slower to initiate motor responses to stimuli eliciting simple responses but more efficient in processing said signals; tolerate changes of residence less easily, affecting their quality of life; and secrete more saliva when administered a drop of lemon on the tongue. Furthermore, introverted people demonstrate a sense of humor which is based more on wordplay (as opposed to extraverted people, who prefer a more aggressive humor), do not like noisy places, and avoid bright colors. Differences have also been observed between introverted and extraverted people in relation to the processes of memorization, learning, and conditioning.

Studies conducted using neuroimaging techniques have corroborated some of the theory postulated by Eysenck. Specifically, the following have been observed with the person at rest and inactive: a larger number of regions of the cerebral cortex associated with introversion; greater bilateral blood flow in the frontal lobe (remembering past events, making plans, or resolving problems), in Broca's area (internal monologue) or in the anterior insula (remembering or imagining); and by contrast with extraversion, where a greater flow is observed in the posterior insula (interpreting current sensory information) (Johnson et al., 1999). This greater activity in the anterior thalamic nucleus and frontal lobe coincides with the characteristics of an introverted personality. Furthermore, differences in the thickness of the area of the left prefrontal cortex observed when comparing introverted and extraverted people may explain differences in social behavior between the two (Wright et al., 2006).

Finally, correlations observed when comparing identical twins raised together and separately combined with the level of agreement observed between different informants and

a high temporal stability in this character trait (McCrae & Costa, 1990) provide sufficient data to consider the genetic contribution of these characteristics. This contribution would be greater at the poles or extremes of the dimension and lesser at the center (ambiversion), where upbringing and family and sociocultural characteristics would play an important role in the manifestation of said personality traits.

Cross-References

► [Extroversion](#)

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Inuit Living Conditions

► [Alaska, Living Conditions of the Inupiat](#)

Inupiat Living Conditions

► [Alaska, Living Conditions of the Inupiat](#)

Invariance

► Test Bias

Invariance Hypothesis

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Synonyms

Hypothesis of equivalence of measurement instruments

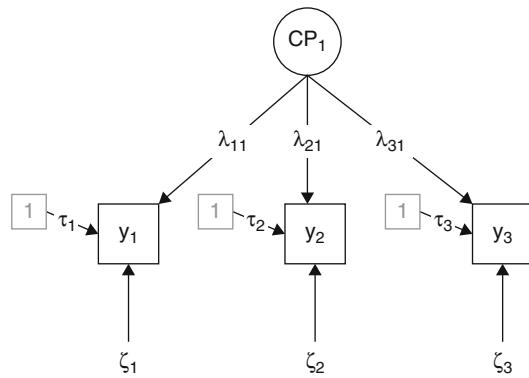
Definition

The hypothesis of invariance or equivalence of measurement instruments across groups suggests that the understanding and the response process are the same across groups so that the responses obtained can be compared.

Description

Scholars commonly make a distinction between *configural, metric, and scalar invariance* (Horn, McArdle, & Mason, 1983; Meredith, 1993; Steenkamp & Baumgartner, 1998). While discussing the different forms of equivalence or invariance, they employ the model specification of equations (1a, 1b, 1c, 1d, and 1e) between several indicators (y_i) for the same latent variable of interest (CP_j). One needs at least several indicators, because with one observed variable the equivalence of the measures cannot be tested. In fact three observed variables are needed to estimate the three effect parameters and error variances of a *reflective* measurement model with one latent variable:

$$y_1 = t_1 + l_{11} CP_1 + z_1 \quad (1a)$$



Invariance Hypothesis, Fig. 1 The measurement model

$$y_2 = t_2 + l_{21} CP_1 + z_2 \quad (1b)$$

$$y_3 = t_3 + l_{31} CP_1 + z_3 \quad (1c)$$

Since the scale of the latent variable needs to be fixed, the t should be 0 and the l equal to 1 in one equation. This means that the latent variable CP_1 will be expressed in the same units as the observed variable and that the observed score is 0 if the latent variable has a score of 0. If these restrictions are not made, the model is not identified. Further assumptions for the standard model are:

$$\text{Covariance}(CP_1, z_i) = 0, \text{ for all } i \quad (1d)$$

$$\text{Covariance}(z_i, z_j) = 0, \text{ for all } i \neq j \quad (1e)$$

This model is presented in Fig. 1.

The literature shows that comparison of relationships across cultures requires:

1. *Configural invariance*, meaning that the model holds for all the countries involved
2. *Metric invariance*, meaning that, besides configural invariance, the slopes are the same in all the countries studied

These two requirements are sufficient for comparison of relationships.

The comparison of means requires:

3. *Scalar invariance*, meaning that, besides metric invariance, the intercepts are the same across all countries being compared.

Invariance Hypothesis, Table 1 Results of the tests of different requirements of invariance for the concept of “subjective competence” based on data from three countries

Invariance restrictions	chi ²	df	Probability
Scalar	84.5	8	.00
Metric	13.3	4	.01
Metric except for λ_{21} in Spain	8.0	3	.39

These hypotheses can be tested using multiple-group analysis in SEM programs.

In invariance testing this model is simultaneously estimated in several samples, taking into account the invariance restrictions on the parameters from the different samples. Such restrictions can be tested using an overall test statistic, which is the sum of the test statistics for the different samples. The degrees of freedom of the test are equal to the sum of the degrees of freedom for the different samples meaning that

$$\text{chi}_k^2 = \text{chi}_{k1}^2 + \text{chi}_{k2}^2 + \dots$$

where $k = k_1 + k_2 + \dots$

If the samples are independent, then chi_k^2 is also X^2 distributed with $df = k$ if the model is correct and distributed noncentral X^2 if the model is incorrect. Here standard X^2 tests can be used to test the hypotheses.

The specified model can be used to test the equivalence of the measurement instrument for “subjective competence” measured in round 1 of the ESS for the countries the Netherlands, England, and Spain. The results of the tests of the different invariance restrictions for these three countries are presented in Table 1.

This table shows that scalar invariance, where all loadings (slopes) and intercepts are equal across countries, must be rejected. The model, assuming that only the loadings are equal (metric invariance), fits much better to the data. However, this model can be improved upon if one loading in Spain is allowed to be different from those in the other countries. Then the model is acceptable, even though the sample sizes are

large. These results suggest that the indicators are not scalar invariant, and according to the literature, this means that one cannot compare the means across the different groups. In this case it is even questionable whether one can compare relationships given that one coefficient in Spain deviates from those in the other countries and, therefore, the measures are not metrically equivalent.

However, given that there are at least two indicators for the concept equivalent across the three countries, one can also rely just on two indicators. This is the situation called “partial equivalence.” In this case the relationships between the latent variable and other variables can be compared across countries (Byrne, Shavelson, & Muthén, 1989). However, one should realize that the relationships of the composite scores for these variables and other variables cannot be compared (Saris & Gallhofer, 2007).

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Investigating Linear Regression Assumptions

- [Residuals, Analysis of](#)

Investment Decision-Making

- ▶ Project Evaluation

Investment Projects

- ▶ Project Evaluation

Invidious Expenditure (or Consumption)

- ▶ Consumption Externalities

Involuntary Part-Time Work

- ▶ Labor Markets and Underemployment

Involvement in Organizations

- ▶ Organizational Commitment

IPAT Depression Scale

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Synonyms

Clinical Depression Questionnaire; Institute for Personality and Ability Testing Depression Scale Questionnaire; IPAT Depression Scale Test; IPAT Depression Test; Personality Assessment Inventory

Definition

The IPAT Depression Scale (Krug & Laughlin, 1976) was developed by the members of the Institute for Personality and Ability Testing to have a psychometrically sophisticated short measure of depressive symptoms for adults that could be used as a companion to the IPAT Anxiety Scale Questionnaire (ASQ).

Description

The IPAT Depression Scale, a 40-item, paper-and-pencil self-rating depression questionnaire, was derived from ▶ factor analysis of the primary pathology factors of the Clinical Analysis Questionnaire (CAQ). The authors claimed to have identified a unitary second-order depression factor. Subsequently, they selected items from the item pool that best discriminated the depressive sample from normal and other clinical groups and added items 19, 20, 39, and 40 (the so-called suppressor items) to correct for ▶ anxiety. The correction is meant to remove the confounding effect of anxiety, which has been shown to correlate with depression items on the measure (Cioffi, Balsamo, & Saggino, 2008; Krug & Laughlin, 1976). The scale is designed to examine the extent and degree of severity of depression and assess a unitary factor of depression. Some of the items are “I feel too depressed and useless to want to talk to people” and “Much of the time I feel sluggish and too weary to move” (Johansson, 1991). The 3-point response format (ranging from 0 to 2) is heterogeneous in that, for example, 11 of the items use “frequently,” “sometimes,” or “rarely” responses, whereas 16 items use “true,” “uncertain,” or “false” responses (Cioffi et al., 2008). The measure is used with adults ages 16 and over. It takes between 10 and 20 min to be administered.

Scoring

The scoring is simple with the use of a cardboard scoring key that fits over each page of the test booklet and can be accomplished within a minute. The 36 items loading on depression

are summed to yield an uncorrected total score that ranges from 0 to 72. Next, the four suppressor items are scored and added together. The score from the suppressor items is then subtracted from the 36-item depression score to render the corrected score. The authors of the scale suggest that the uncorrected scores are more appropriate when the primary concern is to measure depression, and by using the correction items in the scale, some of the anxiety component from the score is dropped (Krug & Laughlin, 1976). Higher scores reflect the endorsement of more depression-related symptoms. The total score is interpreted in relation to suggested cutoff scores.

Factor Structure

The scale consists of multiple factors: depression, anxiety, and psychotism. The unitary factor loading for depression appears only at the second order in an ► [exploratory factor analysis](#) (Krug & Laughlin, 1976). Additionally, the authors report that a correlation of 0.88 was obtained between the scale and the “pure depression factor in a sample of 1,904 normal subjects and clinical cases” which comprised the Clinical Analysis Questionnaire (CAQ) norm groups (Krug & Laughlin, 1976). In sum, the scale, as reported by its authors, has shown an adequate unitary depression factor.

Norms

The IPAT Depression Scale handbook refers to a group of 67 clinically diagnosed depressives together with 729 other clinical cases that were differentially diagnosed against 632 normal adults. The subject selection is not clear. However, the handbook used ► [standard scores](#) on a ten-point scale (STEN) that allow comparison of scores from the depression scale with other tests (e.g., IPAT Anxiety Scale) developed by the Institute for Personality and Ability Testing. A STEN score is defined as the raw score minus the population mean over the population standard deviation, which is multiplied by two and adding 5.5. Norms for converting both corrected and uncorrected raw scores to STEN scores by gender are provided in the handbook. The raw scores may also be converted to percentiles.

In brief, utility of the provided norms in clinical practice versus those in research, given the lack of sufficient empirical evidence, is not well established.

Reliability

Internal Consistency

The IPAT Depression Scale shows coefficient alphas ranging from 0.85 to 0.94 for uncorrected scores with normal and clinical groups, including depressives ($n = 67$), clinical samples (excluding depressives; $n = 728$), prisoners ($n = 211$), alcoholics ($n = 195$), narcotic addicts ($n = 69$), college students ($n = 458$), and adult controls ($n = 632$), as reported by the authors (Krug & Laughlin, 1976). Comparisons were also conducted on reliabilities for uncorrected and corrected scores with male convicts ($n = 59$), college undergraduates ($n = 79$), and college females ($n = 109$) (Krug & Laughlin). The coefficient alphas for the uncorrected scores ranged from 0.90 to 0.94 and for corrected scores, ranged from 0.85 to 0.91, showing relatively higher coefficient alphas for the uncorrected scale scores. Furthermore, the authors reported split-half reliability coefficients ranging from 0.89 for normal adults to 0.95 for clinical patients (depressive vs. others).

The homogeneity index of the items is up to about 0.95 (Krug & Laughlin, 1976), with an average of 0.93, and it has been both criticized and applauded for item redundancy and narrowly measuring depression (Boyle, 1985). This suggests that further empirical investigation to this matter is needed.

In sum, based on reviews and examination of the available evidence with regard to internal consistency, the scale has been both applauded and criticized. However, only the authors of the inventory reported internal consistency estimates, suggesting that further validation of the internal consistency by others is warranted.

Test-Retest

The authors reported a test-retest reliability estimate of 0.93 for a 1-day interval (Krug & Laughlin, 1976). Only one study reported the use of IPAT Depression Scale after an interval of 1 week; however, no correlation was reported

(Johansson, 1991). The test-retest reliability of this scale needs further examination.

Validity

Criterion-Related Validity

Krug and Laughlin (1976) reported that a clinically depressed group scored higher on the test than nondepressed groups. Given that at the time of scale development, no ► effect size was reported comparing the various groups of interest by the authors; here in this review, the effect size (Cohen's d) showing the difference between the depressives and anxiety neurotics group, as an example, is calculated and reported. Using the mean, standard deviation, and the sample size for each group provided by the authors yielded a small to medium effect size estimate (Cohen's $d = 0.41$; 95 % confidence interval = -0.07 to 0.90 ; variance, 0.06) and a small positive correlation between the groups ($r = 0.20$), which is consistent with what the authors suggested as "particularly" welcoming (p. 38). Additionally, using different cutoff scores, the authors showed correctly classifying over 45 % of depressed and 90 % of the normals (Krug & Laughlin, 1976).

In short, the criterion-related validity evidence for the scale, other than what is visually reported by the authors as adequate, needs further examination and update so it fits current standards for screening/assessment of depression in the general or in special populations.

Convergent/Discriminant Validity

Convergent evidence for the IPAT Depression Scale emerges from one study finding a significant correlation ($r = 0.33$) between the Chapman Anhedonia Scales and the IPAT Depression Inventory with 38 patients with chronic myofascial pain and 36 patients with low back pain syndrome (Marbach, Richlin, & Lipton, 1983).

► Discriminant validity evidence emerges from the authors suggesting that the scores on IPAT Depression Scale appear to be relatively independent of motivational patterns, as tested with Motivation Analysis Test (MAT). The uncorrected depression scale scores from 104

female undergraduate students were used for correlation analyses; statistically significant results ($p < 0.01$) ranged from -0.30 to 0.31 , where self-sentiment on the MAT was both the lowest correlation with "satisfaction level" and the highest correlation with "conflict" on the depression scale. The authors also suggest that the scale easily discerns depression from anxiety, given that the suppressor items (items 19, 20, 39, and 40) have small correlations with depression and reasonably strong relationships with anxiety (Krug, Scheier, & Cattell, 1976). Additionally, the authors showed that, with the 40-item corrected scores, the correlation between depression scale score and anxiety was relatively smaller ($r = 0.62$) than the correlation of 0.88 they (Krug and Laughlin, 1976) report between the 36-item IPAT Depression Scale and the pure depression factor in a mixed sample of 1,904 normal and clinical cases.

The IPAT Depression Scale is also compared to the Tennessee Self-Concept Scale (TSCS), a measure of subjective well-being, by the authors (Krug and Laughlin, 1976) who found correlations ranging from -0.32 to -0.51 for the seven of the nine positive scores of TSCS. For this analysis, the sample consisted of 57 male prisoners. This evidence may support the discriminant validity of the IPAT Depression Scale, given that the TSCS is a measure assessing physical, moral, personal, family, social, and academic/work-related issues, but not depression.

Krug and Laughlin (1976) also found a correlation of 0.82 with hypochondriasis scale (D1) of the Clinical Analysis Questionnaire (CAQ) using a sample of 104 female undergraduates. Additionally, authors reported that six items on the scale shared content with the CAQ and were removed from either the CAQ or IPAT Depression Scale to control for their confounding effect; thus, the correlation between the CAQ and the scale lost its strength (0.58). Besides positive correlations between the two assessment scales, psychopathic deviation (-0.54) was the only negative correlation reported after correcting for item overlap. Additionally, evidence shows that the IPAT Depression Scale correlates more with the IPAT Anxiety Scale (0.80)

(Mayer, 1977) and five Minnesota Multiphasic Personality Inventory (MMPI) scales (ranging from 0.32 to 0.51) rather than the one MMPI scale related to depression (0.31) as calculated based on a sample of 57 male convicts (Krug & Laughlin, 1976).

The evidence supporting the convergent validity of the test seems to be weak given that (a) the majority of the reported results are from samples not inclusive of mono-diagnostic depressed adult individuals and (b) very few studies reported on both convergent and discriminant evidence, which makes it difficult to evaluate the evidence.

Further empirical work is needed to support convergent but not discriminant validity of the depression measure.

Discussion

The majority of the psychometric evidence for the IPAT Depression Scale emanates from the test authors' original work. The scale appears to have an adequate unitary depression factor, and strong coefficient alphas have been obtained showing internal consistency. However, the empirical evidence supporting psychometric properties of the inventory is extremely limited, in that (a) test-retest reliability of the inventory is only reported once for a very short interval; (b) no evidence exists to confirm the efficacy of subtracting the anxiety component of the test in discerning patient groups or validating sensitivity/specificity of the scores; (c) the utility of the provided norms in clinical practice is not well established given that the psychometric properties of the scale are questioned and considered to be weak in some areas; (d) the evidence supporting convergent validity of the test seems to be mediocre given that the sample used is not inclusive of mono-diagnostic depressed adult individuals and only limited evidence exists to support it, which is in contrast to the discriminant validity of the scale that has been repeatedly reported as adequate; and (e) the criterion-related validity evidence of the measurement, other than what is reported by the authors as adequate, needs reexamination and updated to fit current standards for assessment purposes. In contrast, of note, the majority of clinical studies using

the measure are conducted with women and with medical conditions other than primary major depression. Given the current evidence, all point to the fact that the psychometric properties of the IPAT Depression Scale need further examination.

Cross-References

- [Anxiety](#)
- [Convergent Validity](#)
- [Correlation Coefficient](#)
- [Criterion Validity](#)
- [Cronbach's Alpha](#)
- [Discriminant Validity](#)
- [Effect Size](#)
- [Exploratory Factor Analysis](#)
- [Factor Analysis](#)
- [Internal Consistency Reliability](#)
- [Norms](#)
- [Reliability](#)
- [Standard Scores](#)
- [Test-Retest Reliability](#)

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IPAT Depression Scale Test

► [IPAT Depression Scale](#)

IPAT Depression Test

► [IPAT Depression Scale](#)

IRQV (Research Institute on Quality of Life, University of Girona, Spain)

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Definition

At present (2011), the IRQV assumes conceptualizations of quality of life from two complementary perspectives: subjective well-being (SWB) and health-related quality of life (HR-QOL).

The institute's approach to subjective well-being is based on considering QOL as a function of both the material and psychosocial environments, and its aim is to cultivate more in-depth knowledge of material living conditions and perceptions and the evaluations and aspirations of individuals, specific groups, and communities.

The institute's approach to HR-QOL is based on the biopsychosocial model, with a preferential interest in preventing illness and promoting health, as well as promoting quality of life among the elderly and the chronically ill.

Description

The IRQV (Institut de Recerca sobre Qualitat de Vida: Quality of Life Research Institute)

<http://www.udg.edu/irqv>

Authors: Ferran Casas (IRQV director from 1997 to 2008) and Montserrat Planes (IRQV director since 2008).

Brief Historical Background

The Quality of Life Research Institute was created by order of the Governing Council of the University of Girona in April 1997 to promote and develop scientific research in the field of social welfare, psychological well-being, and quality of life. It was initiated by a group of 32 researchers with research interests in the aforementioned fields. The departments involved were psychology, pedagogy, health sciences, economics, geography, and history.

The institute's initial goals were defined as:

- Conducting basic and applied research related to quality of life and promoting interdisciplinary and interdepartmental projects
- Cooperating with other institutions and organizations (at regional, national, and international levels) also interested in promoting and developing research and activities related to quality of life
- Training researchers and stimulating scientific, technical, and pedagogical activities in this field
- Developing technical advisory activities for institutions and organizations in this field
- Organizing doctoral training and specialized courses in this field
- Organizing a databank on quality of life for consultation, with particular focus on Catalonia
- Promoting the dissemination and applicability of knowledge and research findings on quality of life, with particular focus on Catalonia

In the year 2000, the IRQV organized the *3rd Conference of the International Society for Quality of Life Studies (ISQOLS)*, held in Girona from 20th to 22nd of July. The joint presidents of the conference were the University of Girona Rector, Josep M. Nadal, and ISQOLS president, Alex C. Michalos. The executive vice-presidents were Ferran Casas, M. Joseph Sirgy, Don R. Rahtz, and Bruno Zumbo. Carme Saurina was the coordinator of the Local Organizing Committee. Two hundred twenty-one researchers from

32 countries participated in the conference, and the University of Girona published a book of proceedings (Casas & Saurina, 2001).

Present Definition

At present (2011), the IRQV assumes conceptualizations of quality of life from two complementary perspectives: subjective well-being (SWB) and health-related quality of life (HR-QOL).

The institute's approach to subjective well-being is based on considering QOL as a function of both the material and psychosocial environments, and its aim is to cultivate more in-depth knowledge of material living conditions and perceptions and the evaluations and aspirations of individuals, specific groups, and communities.

The institute's approach to HR-QOL is based on the biopsychosocial model, with a preferential interest in preventing illness and promoting health, as well as promoting quality of life among the elderly and the chronically ill. As with the first perspective mentioned above, the subjective dimension of quality of life is studied, that is, that perceived and communicated by people themselves, regardless of their physical state evaluated using objective methods. Our research therefore includes the analysis of emotional variables within its primary interests, principally those of anxiety and depression.

At present, the IRQV defines its aims as follows:

Research

- To conduct basic and applied research related to health, well-being, and quality of life, incorporating existing research as far as possible and promoting interdisciplinary and interdepartmental projects
- To work together with other national, state, and international institutions and bodies that promote or conduct research and/or activities related to health, well-being, and quality of life
- To conduct national and international scientific research activities

- To promote joint research and publications with researchers from the same fields in other centers and countries

Teaching

- To train researchers in their fields and promote their continued training in scientific, technical, and pedagogical areas
- To organize master's and doctoral programs and specialized courses related to well-being, quality of life, health promotion, and illness prevention
- To promote activities in internal and external theoretical and methodological training in the relevant fields of the institute

Knowledge transfer

- To provide technical consultancy for institutions and bodies in their fields of expertise
- To promote contacts and exchange with researchers in the same fields in other centers and countries

Services

- To organize a reference archive of documents related to quality of life, well-being, health promotion, and illness prevention, with particular reference to Catalonia

Publications

- To promote the dissemination and applicability of knowledge deriving from research conducted at the IRQV into well-being, quality of life, health promotion, and illness prevention – particularly referring to Catalonia – in scientific journals and the media, as well as in publications produced by the IRQV itself

Congresses and conferences

- To facilitate the dissemination of results from research conducted by the IRQV participating in national and international congresses and conferences
- To organize congresses, conferences, and seminars related to well-being, quality of life, health promotion, and illness prevention

Present Organization

In 2011 the institute has 44 researchers, most of whom are comprised within 5 research teams and 20 collaborators. These research teams are:

- ERIDIQV (Research team on children, adolescents, their rights, and their quality of life). <http://www.udg.edu/eridiqv>. Specific research lines of this team are:
 - Adolescents' and their own parents' well-being and the values they aspire to
 - Audiovisual media between parents and their own children
 - Children's rights from the perspective of children, parents, and teachers
 - Children from the child protection system under state care
 - Indicators of children's and families' subjective well-being at municipal level
 - Children's and young people's psychopathology
- Psychology of health. <http://psicologia.udg.es/GRecerca/GRHCS52/index.asp>. Specific research lines of this team are:
 - High-risk sexual behaviors and sexual behaviors for the prevention of AIDS, other STDs, and unwanted pregnancy
 - High-risk behaviors and behaviors for risk prevention among users of vehicles and pedestrians
 - Substance addiction
 - Stress, pain, and quality of life
 - Quality of life during the ageing process
 - Processes of loss and grief
 - Research into teaching the Psychology of Health
- Discourse, gender, culture, and science (DIGECIC)
 - Social inequality, discourse, and identity
- Cognitive and emotional processes, neurology, and learning
 - Cognitive and emotional processes, neurology, and learning
- Research group into ageing and disability (GREDI)
 - Ageing and disability

Additionally, some individual collaborating researchers have their own research lines. The following research lines are of particular significance:

- Structural equation models with latent variables
- Design and improvement of questionnaire-based research
- Nonparametric models, random coefficient models, and models with a limited dependent variable
- Geographical analysis and spatial statistics
- Social network analysis
- Service quality
- Elderly people and quality of life

Publications

The Institute has published a number of books:

- Casas, F. and Saurina, C. (ed., 2001). *Proceedings of the third conference of the International Society for Quality of Life Studies*, Diversitas collection, 27. Girona: University of Girona. Quality of Life Research Institute.
- Font-Mayolas, S. (2001). *Per què els fumadors fumen i els no fumadors continuen sense fumar?* (Why do smokers smoke and non-smokers continue not to smoke?) Girona: University of Girona, Quality of Life Research Institute.
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Doctoral Training

Since the 2002/2003 academic year, in collaboration with the University of Girona's Department of Psychology, the IRQV has offered doctoral training in psychology and quality of life.

More detailed information of the contents of these training courses can be found in the course syllabuses, under Educational Resources on the ISQOLS website (<http://www.isqols.org>).

Over the past 5 years, nine doctoral dissertations have been completed on the IRQV doctoral program. IRQV researchers have also supervised eight doctoral dissertations on other programs at the University of Girona and three more on doctoral programs at other universities. These are all available online at: <http://www.udg.edu/RQualitatdeVida/FormaciodeTercerCicle/tabid/10753/language/ca-ES/Default.aspx>

Scientific Activities

The complete list of members, more detailed information on their publications and scientific publications by IRQV research teams, as well as information on completed research projects can be found on the website: <http://www.udg.edu/irqv>

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Irrational Beliefs Inventory (IBI)

► [Need for Approval Measures](#)

Irrational Beliefs Test (IBT)

► [Need for Approval Measures](#)

Irregular Employment

► [Casual Employment](#)

Irritable Bowel Syndrome

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Synonyms

[Functional colitis](#); [Functional colonic disease](#); [Functional colopathy](#); [Functional gastrointestinal disorder](#); [Intestinal neurosis](#); [Irritable colon](#); [Irritable colon syndrome](#); [Laxative colitis](#); [Mucous colitis](#); [Nervous indigestion](#); [Spastic colon](#)

Definition

Irritable bowel syndrome (IBS) is a chronic functional gastrointestinal disorder that manifests

as abdominal pain or discomfort in association with altered bowel habits (diarrhea, constipation, or both) (Longstreth et al., 2006). Such symptoms by definition are not explicable by the presence of structural or biochemical abnormalities (Longstreth et al., 2006).

Description

Diagnostic Criteria

The diagnostic criteria for IBS have evolved in the last three decades. Several symptom-based criteria have been developed, including the Manning, Rome I, Rome II, and Rome III criteria (Furman & Cash, 2011). In particular, the Rome criteria, developed by multinational working groups, provide a uniform framework for IBD diagnosis for clinical and research purposes (Furman & Cash, 2011). The Rome III criteria for IBS include at least 12 weeks (which need to be consecutive) in the preceding 12 months, of abdominal discomfort or pain that is accompanied by at least two of the following three symptoms: The abdominal discomfort or pain is (1) relieved by defecation, (2) associated with a change in the frequency of defecation, and/or (3) associated with a change in the form or appearance of stool (Longstreth et al., 2006).

Epidemiology

The disorder is a public health problem presenting to both gastroenterologists and primary care physicians. The prevalence rates in community-based surveys have varied between 3 % and 32 % (Choung & Locke, 2011). Such discrepancies likely reflect differences in case definitions throughout studies. IBS accounts for 10–15 % of primary care visits (Talley, Zinsmeister, Van Dyke, & Melton, 1991). Approximately two-thirds of IBS patients are women. IBS overlaps with other functional gastrointestinal disorders (e.g., functional dyspepsia). Evidences suggest that IBS and gastroesophageal reflux disease occur more frequently together than expected by chance (Jung et al., 2007). Several studies also demonstrate a consistent overlap between IBS and

extraintestinal functional somatic syndromes, such as chronic fatigue syndrome and chronic pelvic pain (Whitehead et al., 2007). Finally, up to 94 % of IBS patients have a comorbid psychiatric disorder, especially major depression, anxiety, or somatization disorders (Whitehead et al., 2007). By contrast, a large group of individuals who meet standard criteria for IBS do not seek care and are psychologically healthy. IBS has been associated with histories of sexual and/or physical abuse (Hasler, 2011).

Pathophysiology

IBS is a complex disorder whose pathophysiology is multifactorial. Several mechanisms have been implicated, such as (1) abnormal colonic motility, (2) abnormal motility in other gastrointestinal sites (e.g., small intestine), (3) altered visceral sensitivity (i.e., lowered pain threshold), and (4) enteric infection (IBS develops within 1 year in up to 10 % of patients after an episode of bacterial gastroenteritis) (Hasler, 2011). Furthermore, brain-gut abnormalities might partly explain some IBS manifestations. In this regard, more recent neuroimaging findings have revealed functional abnormalities in several brain areas involved in pain processing (e.g., somatosensory cortex and anterior cingulate cortex) (Rapps, van Oudenhove, Enck, & Aziz, 2008). Finally, there might be a role for psychosocial abnormalities on IBS pathophysiology (Hasler, 2011).

Treatment

As with other functional disorders, the most important interventions the clinician can offer are reassurance, education, and support. Dietary therapy has a prominent role on IBS management. Several pharmacological therapies have been tested, including (1) antispasmodic agents, (2) antidiarrheal agents, (3) anticonstipation agents, (4) centrally acting agents (e.g., selective serotonin reuptake inhibitors), (5) nonabsorbable antibiotics, and (6) probiotics. Psychological interventions may also be effective (Hyphantis, Guthrie, Tomenson, & Creed, 2009). Following multimodal treatment, the majority of patients with IBS learn to cope with their symptoms and lead productive lives.

Health-Related Quality of Life (HRQoL)

Research Focus

Several studies have compared HRQoL scores in IBS patients with HRQoL in healthy controls or in patients with non-IBS medical disorders. A systematic review revealed that IBS patients score lower on all eight scales of the SF-36 when compared with normal non-IBS cohorts (El-Serag, Olden, & Bjorkman, 2002). IBS has the same physical HRQoL as patients with diabetes and a lower physical HRQoL compared with patients who have depression or gastroesophageal reflux disease. Also, mental HRQoL scores on the SF-36 were lower in patients with IBS when compared to patients with chronic renal failure, a medical condition characterized by severe physical and mental disability. The severity of predominant bowel symptoms emerges as the most important predictor of HRQoL throughout studies (Agarwal & Spiegel, 2011). Abnormalities in ► [sexuality](#), ► [mood](#) (e.g., depression), and ► [anxiety](#) are significant predictors of mental HRQoL. There are several validated disease-specific HRQoL instruments for use in IBS populations (see Wong & Drossman, 2010 for an expert review). The use of disease-specific instruments offers various advantages when compared to generic instruments. However, some pitfalls also exist (e.g., disease-specific questionnaires do not allow comparisons across medical conditions) (Wong & Drossman, 2010).

Cross-References

- [Anxiety](#)
- [Psychotherapy](#)
- [Quality of Life](#)
- [Stress](#)

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Irritable Colon

- [Irritable Bowel Syndrome](#)

Irritable Colon Syndrome

- [Irritable Bowel Syndrome](#)

Is/Ought Problem

- ▶ Fact/Value Dichotomy

Islam Happiness

- ▶ Happiness in Islam

Islamism and Democracy

- ▶ Democracy and Islam in the Middle East

Israel

- ▶ Israel, Personal Well-Being Index; Application to Different Population Group

Israel, Personal Well-Being Index; Application to Different Population Group

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Synonyms

Families of individuals with developmental disabilities in Israel; International Well-being Group; Israel; Personal Well-being Index; Serious mental illness in Israel; Well-being, subjective

Definition

Subjective well-being (SWB) is defined as a normally positive and stable state of mind that

involves the whole life experience (Cummins, Mellor, Stokes, & Lau, 2010). Normal levels of well-being are usually maintained, through a psychological/ neurological system of SWB homeostasis, at an average set point of 75 on a 100-point scale in Western populations. This entry will discuss the application of the Personal Well-being Index (PWI) as used to measure SWB in Israel.

Description

The Purpose for Which the Personal Well-being Index (PWI) Was Used

The PWI contains eight items assessing satisfaction in eight quality of life domains, including standard of living, health, achievements in life, relationships, safety, community-connectedness, future security, and spirituality/religion. These eight domains are theoretically embedded as representing the first level of deconstruction of the global question: "How satisfied are you with your life as a whole?" (International Well-being Group [IWBG], 2006). As such, the PWI scale is argued to be an adequate tool for use with a variety of populations and purposes.

The PWI has been utilized in Israel to assess SWB and its correlates in four different studies among a variety of populations. In the first study, the scale was used to assess SWB among 171 individuals with serious mental illness. The second study used the scale to assess SWB among the parents ($n = 9$) and siblings ($n = 3$) of young athletes with developmental disabilities participating in the Special Olympics Summer World Games in Athens in July 2011. The third study used the scale to assess the well-being of 21 parents of young adults with intellectual disabilities who were enlisted in the Israeli Defense Force as part of a special inclusion program ("Equal in Uniform"). Finally, in the fourth study, the PWI was used to assess the relationship between SWB and family stigma, social support, and self-esteem among 114 parents of individuals with various developmental disabilities. Data analyzed in this entry are

aggregated from these four studies (some of which are still ongoing).

Mode of Survey Delivery

In all four studies, the PWI was completed as part of a comprehensive survey that included additional questionnaires. However, its mode of delivery was adapted to the needs and limitations of the different populations. Overall, two main data collection methods were utilized. For individuals with serious mental illness, the PWI was conducted in a face-to-face interview by social workers who had received training regarding the instrument and the interview process. For the other populations (i.e., parents and siblings), the PWI was completed by the participants themselves through either a paper and pencil format or an online version of the questionnaire.

The Language Used and Any Translation or Respondent Problems Encountered

The PWI was translated into Hebrew by Prof. Sara Carmel and is available through the Australian Centre on Quality of Life website. This version was utilized in the first study, which was focused on individuals with serious mental illness. The version used for the families of individuals with developmental disabilities included one additional item on "Satisfaction with your Leisure Time Activities." These studies were conducted a few months later than the initial study, at which point we decided that the concept of leisure is an important quality of life concept which should be integrated into the studies.

When administering the PWI to individuals with serious mental illness, we encountered some difficulties in their understanding of two of the survey items, namely, the items on personal safety and future security. As these interviews were conducted face to face, the interviewers were able to provide an explanation by restating or rewording the items, while reassuring the participants that there were no right or wrong answers and urging them to provide the answers which best described their feelings.

No comprehension problems were found among the family members who completed the

PWI in our studies. Indeed, no specific difficulties were even noted in a pilot study conducted with seven family members, who were specifically asked to highlight any difficulties in clarity and understanding of the PWI questionnaire. Moreover, only a minimal number of missing data items were found in the various quantitative studies conducted.

Sample Description

Overall, 319 participants (including individuals with mental illness and family members of individuals with developmental disabilities) took part in all four studies. The majority of the participants (53.6 %) were male, with a mean age of 44.53 ($SD = 10.27$) and 13.18 ($SD = 3.31$) years of education. In terms of marital status, 37.2 % were single, 45.1 % were married, 13.9 % were divorced, and the remaining 3.8 % were widowed or of another status not described.

Psychometric Performance of the PWI and the Fit of These Findings with the Results of Previous Research

Descriptive Statistics

All data were checked for response sets. Twelve respondents scoring at the top or bottom of the scale for all PWI items were removed due to this being a possible indicator of either acquiescence or a lack of understanding. Thus, the final analyses were based on 307 participants. Table 1 summarizes the descriptive results of each PWI domain. As seen in the table, the highest satisfaction level was found in the domain of "Religion and Spirituality" and the lowest in the domain of "Future Security."

The mean for all items was below the 75 set point of SWB. Thus, these results are different from those obtained by the International Well-being Group in other Western (non-disabled) populations (Cummins et al., 2010, 2011). This difference may be explained in two ways. First, it may point to cross-cultural differences, meaning that individuals in Israel tend to report lower SWB than that reported in other Western nations. However, a more plausible explanation is that the life experience of individuals with serious mental illness

Israel, Personal Well-Being Index; Application to Different Population Group, Table 1 Descriptive results

	N	Mean	SD	Min.	Max.	Skewness		Kurtosis	
						Statistic	St. error	Statistic	St. error
Standard of living	306	66.41	25.04	0	100	-.80	.14	.23	.28
Health	306	64.67	25.27	0	100	-.45	.14	-.47	.28
Achievements in life	307	66.09	25.99	0	100	-.76	.14	.02	.28
Personal relationships	307	65.64	25.85	0	100	-.69	.14	-.07	.28
Personal safety	307	67.43	26.51	0	100	-.79	.14	-.06	.28
Part of your community	304	63.85	28.31	0	100	-.60	.14	-.46	.28
Future security	300	61.63	25.23	0	100	-.51	.14	-.22	.28
Religion and spirituality	301	74.49	22.38	0	100	-.70	.14	.04	.28
Life as a whole	305	67.25	24.63	0	100	-.86	.14	.38	.28

(not family members of individuals with developmental disabilities, as will be explained in the discriminant validity section) may take its toll on SWB.

Although the means of items were lower in our study, it seems that similar to the Australian study (Cummins et al., 2011), “Satisfaction with Future Security” and “Being Part of the Community” were rated the lowest, while “Satisfaction with Personal Safety” was rated the highest. However, different from the Australian study, “Satisfaction with Religion and Spirituality” was rated higher than the other domains.

Reliability

Table 2 shows the results of the reliability analysis (internal consistency) of the eight PWI domain items. The overall reliability of the items was found to be good ($\alpha = 0.84$) and in the range found in other countries, such as Australia (IWBG, 2006) and Spain (Casas et al., 2012). None of the items, if deleted, were found to significantly increase the internal reliability of the scale, showing the importance of each item to the underlying concept of well-being. Item-total correlations were near or above 0.50 for all domains other than “Religion and Spirituality.” All of the item-total correlations were higher than the criterion value of ≥ 0.30 set in a previous study utilizing the PWI among community-dwelling older adults (Rodriguez-Blazquez et al., 2011). In addition, most of our

item-total correlations (0.35–0.65) were within the range reported in that study (0.44–0.79).

Factor Structure

An exploratory factor analysis (EFA), using the principal components method with varimax rotation, was conducted in order to determine the PWI structure. Results showed that all eight domains loaded onto one component, which explained 47.3 % of the variance. Factor loadings for the domains were strong, ranging from 0.46 for “Religion and Spirituality” to 0.76 for “Personal Relationships.” This one-factor structure is supported by the results of previous studies utilizing the PWI, which also demonstrated similar percentages of explained variance (e.g., Casas et al., 2012).

Correlations Between Variables

Table 3 shows the results of Pearson correlation analyses between the eight PWI domains, as well as between those domains and the domain of “Satisfaction with Life as a Whole.” As can be seen, all correlations were statistically significant at the level of 0.30 or above (the weakest correlation was with “Religion and Spirituality,” and the strongest correlation was with “Achievements in Life”). Furthermore, all inter-item correlations were found to be significant, ranging from 0.20 to 0.55. Only the correlation between “Standard of Living” and “Religion and Spirituality” was not statistically significant.

Israel, Personal Well-Being Index; Application to Different Population Group, Table 2 Reliability analysis

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Standard of living	463.03	15,515.33	.56	.82
Health	464.26	15,883.07	.48	.83
Achievements in life	463.28	14,999.27	.62	.81
Personal relationships	464.00	14,799.17	.65	.81
Personal safety	461.51	14,778.31	.65	.81
Part of your community	465.69	14,700.04	.60	.82
Future security	467.66	15,144.66	.62	.81
Religion and spirituality	454.90	17,028.54	.35	.84

Israel, Personal Well-Being Index; Application to Different Population Group, Table 3 Correlations between variables

	1	2	3	4	5	6	7	8
1. Standard of living	—							
2. Health	.35***	—						
3. Achievements in life	.49***	.34***	—					
4. Personal relationships	.43***	.34***	.55***	—				
5. Personal safety	.40***	.49***	.44***	.54***	—			
6. Part of your community	.42***	.25***	.45***	.49***	.37***	—		
7. Future security	.45***	.39***	.37***	.45***	.57***	.45***	—	
8. Religion and spirituality	.09	.20***	.35***	.30***	.27***	.28***	.28***	—
9. Life as a whole	.55***	.37***	.60***	.53***	.53***	.39***	.45***	.30***

*** $p < .001$

These correlations are similar to the moderate degree of correlation found in other studies, ranging from 0.30 to 0.55 (IWBG, 2006).

Discriminant Validity

In order to test the discriminant validity of the scale, we examined its ability to differentiate between groups of participants. Specifically, the sample was divided into two groups: one group of individuals with serious mental illness and the other of family members of individuals with developmental disabilities. Independent t-tests were utilized to compare the means in the eight PWI domains and “Life as a Whole” between the two groups.

As seen in Table 4, all the PWI domains, with the exception of “Religion and Spirituality,” were rated higher by family members of individuals with developmental disabilities as compared to individuals with serious mental illness. In the first group, the PWI scores approached near SWB homeostasis, while individuals with serious mental illness scored approximately six points or below on each of the domains.

Discriminant validity was also examined in terms of differences in the PWI scores between female and male participants. Results for these analyses (not shown) revealed no statistically significant differences on any of the PWI domains between the male and female participants.

Israel, Personal Well-Being Index; Application to Different Population Group, Table 4 Differences in the PWI between individuals with serious mental illness and family members of individuals with developmental disabilities

	Mean (SD)	t-test
Standard of living		4.29***
People with psychiatric illness (N = 164)	60.85 (25.51)	
Family of individuals with ID (N = 142)	72.82 (22.95)	
Health		6.10***
People with psychiatric illness (N = 165)	56.97 (24.34)	
Family of individuals with ID (N = 141)	73.69 (23.34)	
Achievements in life		5.84***
People with psychiatric illness (N = 165)	58.61 (27.83)	
Family of individuals with ID (N = 142)	74.79 (20.58)	
Personal relationships		5.77***
People with psychiatric illness (N = 165)	58.24 (27.23)	
Family of individuals with ID (N = 142)	74.23 (21.22)	
Personal safety		4.47***
People with psychiatric illness (N = 165)	61.33 (27.31)	
Family of individuals with ID (N = 142)	74.51 (23.75)	
Part of your community		2.49*
People with psychiatric illness (N = 163)	60.12 (29.17)	
Family of individuals with ID (N = 141)	68.16 (26.74)	
Future security		1.98*
People with psychiatric illness (N = 159)	58.93 (25.99)	
Family of individuals with ID (N = 141)	64.68 (24.07)	
Religion and spirituality		1.56
People with psychiatric illness (N = 161)	72.61 (23.63)	
Family of individuals with ID (N = 140)	76.64 (20.73)	
Life as a whole		3.73***
People with psychiatric illness (N = 164)	62.56 (26.97)	
Family of individuals with ID (N = 141)	72.70 (20.38)	

* $p < .05$, *** $p < .001$

Construct Validity

As previously defined, the eight PWI domains would be expected to constitute the minimum set of domains representing the first-level deconstruction of "Life as a Whole." This expectation was verified, using the criterion that each domain must contribute a unique variance when the domains are collectively regressed against "Satisfaction with Life as a Whole" (IWBG, 2006). In line with this approach, we conducted a linear regression with "Life as a Whole" as the dependent variable and all eight PWI domains as the independent variables.

As seen in Table 5, 50 % of the variance in "Life as a Whole" can be attributed to the PWI

Israel, Personal Well-Being Index; Application to Different Population Group, Table 5 Multiple regression predicting "Life as a Whole" (n = 288)

	B	SE B	β
Constant	4.22	4.56	
Standard of living	.23	.05	.24***
Health	.02	.05	.02
Achievements in life	.24	.06	.25***
Personal relationships	.14	.06	.15*
Personal safety	.15	.06	.16**
Part of your community	.00	.05	.00
Future security	.05	.06	.05
Religion and spirituality	.11	.05	.10*

$F(8, 279) = 34.73***$, $R^2 = 0.50$, Adjusted $R^2 = 0.48$, * $p < .05$, ** $p < .01$, *** $p < .001$

domains. The strongest contribution to "Life as a Whole" was made by "Achievements in Life" followed by "Standard of Living." The domains of "Health," "Community," and "Future Security" were not found to make a significant contribution to the overall construct of "Life as a Whole."

A comparison of the present results to those of previous studies reveals that not all studies found all of the domains to be significant when regressed against "Life as a Whole." For example, in Australia, the domains of "Personal Safety" and "Religion or Spirituality" were not found to make a unique contribution to "Life as a Whole" (IWBG, 2006). Furthermore, the overall variance predicted by these domains is similar to that found in previous studies (IWBG). However, the domains that are found (or not found) to make a unique contribution to "Life as a Whole" are slightly different according to the current data in comparison to previous studies. This may be attributed to the small sample sizes or the fact that the studies were conducted in different countries and with different population groups.

The Relation Between the PWI and Other Measures

In our four studies, the PWI was examined for its association with several different measures. In the study of individuals with serious mental illness, we examined a mediational model for the relationship between SWB, hope, and service needs. Findings showed a strong association between hope (as measured by the Hope Scale, Snyder et al., 1991) and SWB ($r = 0.57$, $p < .001$). Moreover, SWB was found to be associated with the number of self-assessed needs (as measured by the Camberwell Assessment of Needs, Trauer, Tobias, & Slade, 2008) ($r = -0.32$, $p < .001$). Finally, when placed together in a regression model, hope and needs were predictive of 40 % of the variance in SWB, with hope being a stronger predictor of SWB (Werner, 2012).

Using the data collected from the parents of individuals with developmental disabilities, we were able to examine the association between

SWB and self-esteem, as well as social support. The results (unpublished) showed that SWB was significantly related to the parents' self-esteem ($r = 0.66$, $p < .001$) (as measured by Rosenberg's Self-Esteem Scale, Rosenberg, 1965) and the parents' perceived level of social support ($r = .54$, $p < .001$) (as measured by the Social Support Scale, Auslander, Soskolne, & Ben-Shahar, 2005).

Implications of Findings Regarding the PWI for Current and Potential Use

The psychometric properties and discriminative ability, as well as the relationship found between the PWI and other variables described, allow us to reach the conclusion that the PWI scale is a very useful tool for assessing well-being in Israel. However, further research should be conducted in order to obtain population norms for the PWI scale. Use of the PWI should also be expanded to other population groups, especially to more ethnically diverse populations. In addition, the PWI should be employed in longitudinal research to enable the assessment of change in SWB in accordance with life cycle changes (e.g., a family member with a disability moving out of the family home to independent housing). Similarly, the PWI should be utilized in clinical settings to examine the benefits gained from services and interventions, such as parental support groups, aimed at bringing about improved SWB.

Data Sharing

The author is willing to share data with other researchers.

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it 15th (out of 169 countries). From UN data since the 1970s, quality of life in Israel seems to have progressed significantly down the years. However, these reports focus mainly on macrolevel parameters such as education, health, equality, and material well-being. For the last two decades, Israeli scholars have studied Israelis' life quality as reflected in their ► **subjective well-being**. The following review presents the main findings of these studies.

Periodical assessments of the quality of life of Israelis, represented by their reported ► **life satisfaction**, indicate that Israelis are generally satisfied with their lives. However, most studies conducted in Israel differentiate groups according to the unique demographic composition of Israeli society. About 80 % of the 7,800,000 Israeli citizens are Jews (or of Jewish ancestry), the remainder non-Jews (Arabs). Of the Jewish population, about 40 % are immigrants (foreign-born) from various countries of origin. Those from the former Soviet Union (FSU) comprise the largest immigrant group, accounting for about 20 % of the total Jewish population.

The following Fig. 1 presents the level of general life satisfaction obtained in 2007 from a representative sample of Israelis aged 20–65 years. Jews and Arabs are presented separately, as are the three most recent immigrant groups arriving in Israel since the beginning of the 1990s: from the FSU, from Ethiopia, and from Western countries (mainly from North America and Western Europe). As we learn from the Fig. 1, Jews are more satisfied with their lives than Arabs, and among the recent arrivals, the FSU immigrants are the least satisfied and those from Western countries are the most satisfied. The differences between the groups may be attributed to demographic and socioeconomic factors, as well as cultural. The socioeconomic profile of the average Israeli Arab is lower than that of the average Israeli Jew. Recent Western immigrants typically enjoy a higher standard of living than FSU immigrants, although a large portion of both groups is highly educated and skilled. The Ethiopian immigrants have the lowest living standard of all the different groups in

Israel, Quality of Life

Karin Amit

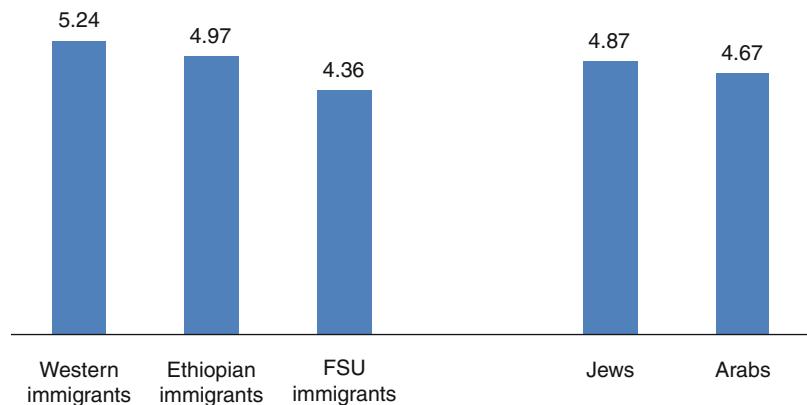
Ruppin Academic Center, Emek Hefer, Israel

Description

Quality of life is attracting increasing academic interest on the part of scholars of society in Israel, which is among the top 40 countries in international comparisons on life quality parameters. The ► **Economist Quality of Life Index** 2005 ranks Israel 38th (out of 111 countries), whereas the UN Human Development Report 2010 places

Israel, Quality of Life,

Fig. 1 Ruppin index,
Israel 2007. (Source:
Ruppin Index, 2007, The
Institute for Immigration &
Social Integration, Ruppin
Academic Center)

Life satisfaction (1–6), Israelis aged 20–65

Israeli society (including the Arabs) and very low levels of academic education. In addition, Western and Ethiopian immigrants came to Israel mainly out of religious and Zionist motivation and a significant proportion define themselves as religious or traditional; by contrast, the FSU immigrants came to Israel after the collapse of the Soviet Union due of economic and political push factors, and most do not define themselves as religious. The importance of ► religion and religious support for the individual's psychological well-being has been proven in studies in the world generally and in the Israeli context. Religious belief and religious support have been related to higher levels of life satisfaction and lower levels of emotional distress among religious Jewish people living in Israel (Lazar & Bjorck, 2008).

A recent Israeli study compared FSU immigrants and Western immigrants (aged 20–65) for life satisfaction and its determinants (Amit, 2010). In both groups, immigrants reporting the greatest satisfaction were women, religious, and with a high standard of living, nonacademic education, and a strong Israeli identity. Standard of living proved the most significant predictor, a finding that highlights the importance of immigrants' economic position in the new country. Hebrew proficiency played a significantly positive role only for Western immigrants, as did living in an ethnically homogeneous

neighborhood. Another study on FSU immigrants examined the correlation between their quality of life and their sense of success in the migration process. Quality of life emerged as a good indicator of perceived success in the migration process (Benish-Weisman & Shye, 2011).

In keeping with quality of life literature, many Israeli studies address different age groups: children, adolescents, and the elderly. Some turn their attention to a specific immigrant group or ethnic minority. A recent study that compared the well-being of children in Israel and in the United States found no significant differences between the groups in wellness factors, although the Israeli children scored higher on social self factors, with younger children scoring higher than adolescents (Tatar & Myers, 2010). In reference to Israel's ► war experience, studies on children and adolescents examined their subjective well-being under threat of war or terrorist attacks. These studies point to the negative effect of these threats on children's and adolescents' subjective well-being and to the importance of social support and self-control in moderating this effect (e.g., Ronen & Seeman, 2007). The well-being of FSU immigrant adolescents arriving in Israel without their parents was investigated in a three-year longitudinal study, tracing the adolescents before and after their immigration. The young immigrants' psychological well-being was found highest in the premigration period.

This feeling declined in the first year in Israel but improved in the third year. Throughout the entire study period, the immigrants' psychological well-being was higher than that of the non-emigrating adolescents who remained in Russia and Ukraine (Tartakovsky, 2009).

Life quality of the elderly has been widely studied in Israel to identify its determinants in that population, as well as among Israel's various ethnic groups. A study on the Israeli component of SHARE (Survey of Health, Aging and Retirement in Europe) showed that marital status, health conditions, economic situation, and social capital (social contacts and activities) were all significant predictors of subjective well-being, represented by quality of life, life satisfaction, and sense of depression, in elderly people (Amit & Litwin, 2010). The study also revealed that the immigrants' origin exerted no significant long-term impact on their well-being after controlling for the effects of the immigration and background variables. The only group in which origin was found associated with well-being outcomes was that of the FSU (after 1989). For these immigrants, even after controlling for the background variables, a negative association was apparent between origin and their perceived quality of life and sense of depression. These findings may indicate the importance of cultural differences as well as immigration circumstances in determining the immigrant's life quality. Another study with elderly Israeli Arabs evinced their keeping to the universal path to successful aging, but culturally unique characteristics were also apparent: for Israeli Arabs, belonging to community- and family-oriented networks significantly contributed to their well-being over and above all other variables (Litwin, 2006).

The study of life quality in Israel focuses on Israeli citizens. Since the early 1990s, Israel has encountered a new group of immigrants, namely, labor migrants (non-Jews and non-Palestinians) from various countries, who work mainly in agriculture, construction, and nursing for elderly people. In addition, in recent years, refugees from Africa have been entering Israel by crossing the country's southern border. Israel has no clear

policy on these immigrants, but their numbers are rising and some express their interest to remain in Israel as permanent residents and citizens. Future studies related to quality of life in Israel should include these new groups of immigrants as well.

Cross-References

- [Economist Intelligence Unit Quality of Life Index](#)
- [Human Development Report \(HDR\)](#)
- [Immigrants, an Overview](#)
- [Life Satisfaction](#)
- [Religion](#)
- [Subjective Well-Being](#)
- [War](#)

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Israeli Democracy Index

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Synonyms

Civil Solidarity in Israel; Gender inequality index; Government performance in Israel; Interest in politics in Israel; Political culture; Political influence; Political participation; Political rights; Religious freedom in Israel

Definition

The Israeli Democracy Index is a public opinion poll project conducted by the *Israel Democracy Institute's Guttman Center*. Since 2003, an extensive survey has been conducted annually on a representative sample of Israel's adult population (1,200 participants). Each survey presents an estimate of the quality of Israeli democracy for that year. On the whole, the project aims at assessing trends in Israeli public opinion regarding realization of democratic values and the performance of government systems and elected officials. Analysis of its results may contribute to public discussion of the status of democracy in Israel and create a cumulative empirical database to intensify discourse concerning such issues. Each Index also includes a report on the state of Israeli democracy from a comparative viewpoint, according to a series of international quantitative indicators.

Description

Over the past few years, the Index has been sponsored by the President of Israel. The year's Index

is presented during an event at the President's residence, attended by public figures, diplomats, and representatives of the Israeli and foreign media. The event includes discussion of the year's data, with the participation of the President and the heads of the three branches of government (the Speaker of the Knesset, the Prime Minister or another Cabinet Minister representing him/her, and the President of the Supreme Court).

The Israeli Democracy Index survey examines the following issues on an annual basis:

1. *The quality of government performance as perceived by Israelis, including public trust in state institutions and key officials.*

The survey annually monitors the public's feelings about whether democracy is indeed practiced appropriately in reciprocal relations between the state and its citizens as well as public satisfaction with government performance. Long-term trends confirm that Israelis do feel that their country is democratic and functions appropriately as such. Nevertheless, some criticism of the performance of government institutions was discerned, such as extended dissatisfaction with the manner in which the government handles problems now facing the state. One recurring Democracy Index question asks participants to indicate the extent of their trust in several key institutions and officials, including the Prime Minister, political parties, the Supreme Court, the Israel Defense Forces (IDF), the Israel police, the President, and the Knesset. Trust in the IDF has been consistently highest, with the Supreme Court in second place but trailing considerably and the Knesset, the government, and political parties at the low end of the scale. Notwithstanding the above, a majority believes that the Knesset's party makeup indeed reflects the distribution of views among the public. Hence, despite their lack of trust in the Knesset, Israelis do feel that it represents them appropriately.

2. *Support of various democratic values and norms in principle and practice and assessment of relations with elected officials, including citizens' ability to exert political influence.*

Most of Israeli society supports the existence of basic human rights, affirming the principle that everyone must have the same rights under the law irrespective of opinions and that it is appropriate to grant freedom of expression to all. Moreover, the Israeli public largely supports full equal rights for Jewish and Arab citizens (such support should not be taken for granted, considering the extended national conflict). Nevertheless, when equal rights for Jews and Arabs are translated into concrete rights, such as participation in decisions critical to the future of the state and issues concerning the Jewish character of Israel or increasing the number of Arab cabinet ministers, the Jewish public does not display much willingness to uphold the principle of equality.

Additional parameters for determining the existence or nonexistence of a democratic political culture in Israel concern the extent of interest and involvement of the Israeli public in politics, based on the approach that perceives the public's informed comprehension of political structures and processes and its active involvement in politics as necessary conditions for a normal democratic process. The findings show that most Israelis do take an interest in politics and political issues and most follow key political topics in the media and discuss them with their friends and families. However, when the Israeli democratic culture is examined in the context of active citizenship and ability to influence, the activity levels recorded over the years have been unimpressive. Moreover, the public feels that it is hardly able to influence government policy.

3. National and civil solidarity among Israeli citizens and tolerance of "others."

Year after year, the Democracy Index surveys have included the question: "To what extent do you feel part of the State of Israel and its problems?" Despite powerful social tensions, the level of overall social solidarity in Israel is high. Throughout the years, most Israelis maintained that they do consider themselves part of the country and its

problems and most expressed a desire to build their lives in Israel, even in the more distant future, convinced of Israel's staying power despite all security threats.

The tolerance dimension is examined by assessing the majority's attitude toward political rights for ethnic minorities and of "others" living in the country. The distance or affinity that members of various groups in the Israeli public feel toward "others" was assessed in 2011 in a question concerning the extent to which various groups are considered to be part of the Israeli collective. One interesting finding shows that a majority of the public does not think that foreign workers constitute part of Israeli society but welcomes their children raised in Israel as full-fledged Israelis. Note that the Arab public also expresses reservations about acceptance of groups such as foreign workers and ultra-Orthodox Jews.

As indicated, the annual Israeli Democracy Index also reports on **the state of Israeli democracy compared with that of other countries, according to a series of international quantitative indicators**. This part of the Index presents Israel's relative situation as reflected in indicators published by leading research institutes throughout the world. The comparison addresses two aspects: the quality of Israel's democratic performance compared with that of other countries and Israel's performance past and present. For example, the indicators included in the 2011 Democracy Index concern the following issues: perceptions of corruption, government performance, the electoral process and pluralism, political participation, political culture, gender inequality, economic freedom, freedom of the press, civil rights, freedom of religion, religious tensions, and ethnic/nationality/language tensions.

On most international scales, Israel is positioned right after the free democracies and just before the partly free ones. Over the past few years, there have not been any major changes in Israel's overall ranking: Its position relative to those of other countries

has not worsened, although it has not improved significantly either. One may consider such stability to be an achievement, considering the democratization processes that various countries are undergoing in Central and Eastern Europe, South America, and elsewhere.

The following are examples of Israel's position relative to other countries: In the Political Participation Index, Israel received a high score and is positioned in third place, a very good position at the top of the scale, between New Zealand and Canada. By contrast, on the Religious Tensions, Ethnic/Nationality/Language Tensions and Religious Freedom Indexes, Israel is situated at the bottom of the scale, as a country that imposes restrictions of religious freedom (together with Turkey, Jordan, Egypt, Syria, China, Saudi Arabia, and Russia). On the Political Stability Index, Israel ranks last among a series of democracies examined. Israel received a particularly bad score for its persistent social schisms. On the Gender Inequality Index, there was indeed a decline in Israel's relative position over the past few years, but it is still situated ahead of most new democracies.

In certain years, the annual Democracy Index survey also included coverage of specific relevant issues:

2004 Attitudes of Youth. The survey depicts Israeli youth as relatively conformist, reflecting feelings and perceptions more positive than those of adults regarding the status of Israeli democracy. By contrast, the level of interest and knowledge among young people, their support for soldiers who refuse to obey orders, and their desire for strong leadership differ from those of adults.

2005 On the Tenth Anniversary of Prime Minister Yitzhak Rabin's Assassination. Ten years after the assassination of Prime Minister Yitzhak Rabin, with the struggle over the Gaza disengagement in the background, Israelis strongly fear another political assassination and do not believe that the lessons of the November 1995 assassination have been duly learned.

2006 Changes in Israel's Political Party System: Dealignment or Realignment? Israeli citizens are indifferent to party politics. They no longer consider old party struggles relevant and few retain a strong sense of identification with one party or another.

2007 Cohesion in a Divided Society. Social cohesion has always been a prominent feature of Israeli society. In recent years, feelings of weariness and disgust with political processes in general and with the political system in particular have become widespread.

2008 Between the State and Civil Society. Attitudes toward civil society are far more positive than those concerning the state establishment. Despite the continuous decline in satisfaction, however, the Israeli public still expects the state to function as the sole agency that dictates and directs social and economic policy.

2009 Twenty Years of Immigration from the Soviet Union. Massive immigration from the Former Soviet Union (FSU) during the 1990s changed the composition of Israel's population and the face of Israeli society. The Index offers an extensive survey of the immigrants' integration into Israeli society and politics, their political culture, and their relations with the host society.

2010 Democratic Principles in Practice. The analysis was conducted along two axes: vertical and horizontal. Along the vertical axis, it focused on comparing support for core democratic values with citizens' assessment of the extent to which these values are realized by government institutions and agencies. On the horizontal axis, it centered on relations between citizens, as individuals and as groups, examining whether Israeli citizens in fact uphold their stated commitment to constitutional values and the rights derived from them.

2011 The Attitudes of Young Adults. Young adults typically display less respect for and less trust in state institutions – including the IDF as well as public officials – than do older persons. Their political knowledge generally falls short of that of intermediate and older age

groups. It is clear that young adults are less supportive of unconditional freedom of expression and full equal rights for Arab citizens of Israel. In general, young adults show more respect for religious functionaries and consider them a more important source of political authority than do the older age groups.

This entry includes no numerical data and concentrates on trends alone. Detailed figures may be obtained from the linked Index Reports.

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Issue Networks

- Policy Networks

Istanbul Declaration

Jonathan Hall

Global Project on Measuring the Progress of Societies, OECD, Paris, France

Description

In June 2007, some 1200 people from about 130 countries gathered in Istanbul to attend the second Organisation for Economic Cooperation and Development (OECD) World Forum on Statistics, Knowledge and Policy, entitled "Measuring and Fostering the Progress of Societies." The conference was organized by the OECD in cooperation with Turkstat, the Turkish Statistics Agency, and the Turkish Government's State Planning Organization.

During the conference the OECD, the European Commission, the Organisation of the Islamic Conference, the United Nations, the ► [UN Development Programme](#), and the World Bank affirmed in a declaration their commitment to measuring and fostering the progress of societies in all dimensions, with the ultimate goal of improving policy making, ► [democracy](#), and citizens' well-being.

A number of other organizations and individuals went on to add their name to the list of signatories.

The declaration is as follows.

Istanbul Declaration

We, the representatives of the European Commission, the Organisation for Economic Cooperation and Development, the Organisation of the Islamic Conference, the United Nations, the United Nations Development Programme and the World Bank, recognize that while our societies have become more complex, they are more closely linked than ever. Yet they retain differences in history, culture, and in economic and ► [social development](#).

We are encouraged that initiatives to measure societal progress through statistical indicators have been launched in several countries and on

all continents. Although these initiatives are based on different methodologies, cultural and intellectual paradigms, and degrees of involvement of key stakeholders, they reveal an emerging consensus on the need to undertake the measurement of societal progress in every country, going beyond conventional economic measures such as GDP per capita. Indeed, the United Nation's system of indicators to measure progress towards the Millennium Development Goals (MDGs) is a step in that direction.

A culture of evidence-based decision making has to be promoted at all levels, to increase the welfare of societies. And in the "information age," welfare depends in part on transparent and accountable public policy making. The availability of statistical indicators of economic, social, and environmental outcomes and their dissemination to citizens can contribute to promoting good governance and the improvement of democratic processes. It can strengthen citizens' capacity to influence the goals of the societies they live in through debate and consensus building, and increase the accountability of public policies.

We affirm our commitment to measuring and fostering the progress of societies in all their dimensions and to supporting initiatives at the country level. We urge statistical offices, public and private organizations, and academic experts to work alongside representatives of their communities to produce high-quality, facts-based information that can be used by all of society to form a shared view of societal well-being and its evolution over time.

Official statistics are a key "public good" that foster the progress of societies. The development of indicators of societal progress offers an opportunity to reinforce the role of national statistical authorities as key providers of relevant, reliable, timely and comparable data and the indicators required for national and international reporting. We encourage governments to invest resources to develop reliable data and indicators according to the "Fundamental Principles of Official Statistics" adopted by the United Nations in 1994.

To take this work forward we need to:

- Encourage communities to consider for themselves what "progress" means in the twenty-first century
- Share best practices on the measurement of societal progress and increase the awareness of the need to do so using sound and reliable methodologies
- Stimulate international debate, based on solid statistical data and indicators, on both global issues of societal progress and comparisons of such progress
- Produce a broader, shared, public understanding of changing conditions, while highlighting areas of significant change or inadequate knowledge
- Advocate appropriate investment in building statistical capacity, especially in developing countries, to improve the availability of data and indicators needed to guide development programs and report on progress toward international goals, such as the Millennium Development Goals

Much work remains to be done, and the commitment of all partners is essential if we are to meet the demand that is emerging from our societies. We recognize that efforts will be commensurate with the capacity of countries at different levels of development. We invite both public and private organizations to contribute to this ambitious effort to foster the world's progress and we welcome initiatives at the local, regional, national and international levels.

We would like to thank the Government of Turkey for hosting this second OECD World Forum on "Statistics, Knowledge and Policy." We also wish to thank all those from around the world who have contributed to, or attended, this World Forum, or followed the discussions over the Internet.

Istanbul, 30 June 2007.

Cross-References

- [OECD List of Social Indicators](#)
- [OECD Main Economic Indicators](#)
- [Progress of Societies: OECD Projects](#)

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Organisation for Economic Cooperation and Development (OECD), & World Forum on Statistics, Knowledge and Policy. (2007, June 27–30). *Measuring and fostering the progress of societies, Istanbul* [Conference Brochure]. Paris: OECD.

Definition

Italy is a country located in the south of Europe. It counts around 60 million inhabitants, its surface is 301,338 km², and the population density is therefore around 200 ab./km².

IT Competences

- ▶ [Digital Competences](#)

IT Environment

- ▶ [Cloud Computing](#)

Italian Old People, Subjective Health of

- ▶ [Self-Rated Health of Italian Elderly](#)

Italy

- ▶ [Milan, Quality of Life](#)

Italy, Quality of Life

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Synonyms

- [Sole 24 Ore; Three Italies](#)

Description

Although the overall positive condition of Italy is one of the most rich and economically developed countries in the world, there are several discrepancies between regions. Differences concern different sectors. Economic conditions, infrastructural and services supplies, employment opportunities, sociodemographic features, and educational and cultural standards change from one area to another one.

In Italy, where the differences between regions are extremely meaningful, interpretation of socioeconomic development has been characterized for a long time by the simple distinction between the more developed areas in the center north of the country and the distressed regions in the south and islands (meridione). Although this gap is still evident and prominent, other theories became popular in the 1970s in order to explain in a more articulated and appropriate way the social and economic disparities in Italy. In particular, in the seventies, new analyses (Bagnasco, 1977) modified the classical distinction between the rich north and the poor south, introducing a new model: the so-called *Three Italies*. This approach singled out three different socioeconomic homogeneous geographic areas:

- The northwestern *Industrial Triangle* characterized by a *monocephalic* urban system based on the concentrations of the heavy industry in three large metropolitan areas: Turin, Genoa, and Milan
- The central and northeastern part of Italy with a more fragmented urban and economic system based on a network of many small and medium sized cities and firms (*Third Italy*)
- The south and the islands (meridione) characterized by a deep and persistent economic delay and on the dominance of

Italy, Quality of Life, Table 1 Thematical areas and indicators (Source: Sole 24 Ore, *Quality of life report*, 2010)

Indicators	Source
1. Standard of living	
(a) Per capita GDP (gross domestic product)	Prometeia
(b) Per capita bank deposit in €	Abi-Bankitalia, Istat
(c) Average pension per month in €	Inps
(d) Per capita expenditure for semidurable goods (cars, furniture, household electrical appliances) in €	Findomestic
(e) Cost of living index (with cigarettes and tobacco)	Istat, Centro Studi Sintesi
(f) Cost of dweller per square meter in €	Scenari immobiliari
2. Business and work	
(a) Registered companies/1,000 inhabitants	Movimprese-Infocamere, Istat
(b) New registered companies/write-off companies	Movimprese-Infocamere
(c) Failures/1,000 companies	Movimprese-Infocamere
(d) Per capita protest in €	Infocamere, Cdc,Istat
(e) Women employment rate	Istat
(f) Young employment rate	Istat
3. Law and order	
(a) Pickpocketing and bag snatching/100,000 inhabitants	Ministry of the Interior
(b) Burglary in dwellings/100,000 inhabitants	Ministry of the Interior
(c) Car robbery/100,000 inhabitants	Ministry of the Interior
(d) Fraud and computer trickery/100,000 inhabitants	Ministry of the Interior
(e) Bleedings/100,000 inhabitants	Ministry of the Interior
(f) Total crimes variation	Ministry of the Interior
4. Services, environment, and health	
(a) Tagliacarne infrastructural supply index	Istituto Tagliacarne
(b) Legambiente ecosystem index	Legambiente
(c) Temperature variation between hottest month and coldest month	Meteo Milano Duomo
(d) Hospital migration	Istat, Ministry of Health
(e) Public kindergarten/1,000 children	Cittadinanzattiva
(f) Completed civil suites/pending civil suites	Ministry of Justice
5. Population	
(a) Inhabitants per square km	Istat
(b) Divorces/10,000 families	Istat
(c) Births/1,000 inhabitants	Istat
(d) Over 65 people/active population	Istat
(e) Graduates/1,000 young people (25–30 years)	Istat
(f) Regular immigrants/overall population	Istat/Caritas/Migrantes
6. Leisure	
(a) Books purchase index/100,000 inhabitants	Messaggerie Libri, Istat
(b) Performances/100,000 inhabitants	Siae, Istat
(c) Cinema/100,000 inhabitants	Movimprese/Infocamere, Istat
(d) Cafè and restaurant/s 100,000 inhabitants	Movimprese/Infocamere, Istat
(e) Voluntary organizations/1,000 inhabitants	IsfolMips
(f) Sportsmanship index	Gruppo Clas

some large problematic cities (Naples and Palermo in particular) surrounded by even more deprived rural areas

This model has changed during the last decades, and the evolution of the ► [quality of life](#) by regions is more and more complex. However, in general, studies show that geographic location of the provinces explains quality of life better than the size of their *capoluogo* (main city). In particular, regions in the *Third Italy* present the best living conditions when compared with the other parts of Italy. Data also show that in Italy living conditions in the provinces with large *capoluoghi* are generally worse than in the small and, especially, medium-sized ones, despite an irregular trend (Nuvolati, 2003).

These findings are partly confirmed by *Sole 24 Ore* – the most important Italian economic newspaper – that since 1988 carries on quality of life research. The research is repeated every year and the results are published in December in a special dossier attached to the newspaper.

Although there are some variations, the general structure of the research is stable and based on 36 indicators ([Table 1](#)).

The territorial units for the analysis are the Italian provinces (107 at 2010). *Sole 24 Ore* does not collect data directly. Data come from different kind of statistical sources: private and public research institutes, ministries, and other organizations. Years are different for each indicator, according to the data availability by the sources.

Quality of life is divided into six chapters or thematic areas, again subdivided into six indicators. The values for each indicator are standardized in order to obtain proportional scores: 1,000 points are assigned to the first ranked province, gradually decreasing for the next ones on the basis of the proportional distance from the top. Six indexes are created, one for each concern, simply obtained by computing the average of the scores for the standardized indicators included in each specific thematic area. The overall index is the average of the six partial area indexes. Therefore, there are no weighting operations; every indicator weighs the same.

Italy, Quality of Life, Table 2 Quality of life ranking in the Italian cities (Source: Sole 24 Ore, *Quality of life report*, 2010)

- | |
|-------------|
| 1. Bolzano |
| 2. Trento |
| 3. Sondrio |
| 4. Trieste |
| 5. Siena |
| 6. Aosta |
| 7. Gorizia |
| 8. Bologna |
| 9. Oristano |
| 10. Belluno |

More recently, the research based on ecological data has been supported by a complementary ► [survey](#) on people's sentiments regarding their subjective perception of quality of life. The opinion poll has been done by IPR Marketing Institute, through interviews (Cati and Cawi), and involves around 66,000 subjects per sample (around 600 per province).

Just to give an example of final results, we show the top ten positions in the 2010 overall ranking. These are all medium-sized cities, mainly located in the northern part of Italy ([Table 2](#)).

Cross-References

- [Development](#)
- [Quality of Life](#)
- [Regional Disparities](#)
- [Subjective Indicators](#)
- [Survey](#)

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Item Analysis

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Definition

It refers to a group of analytical approaches allowing a multi-item scale to be assessed.

Description

In order to obtain meaningful synthetic scores by aggregating item scores from a multi-item scale, the items should be submitted to particular analytical procedures which allow items to be tested in their combined capacity and quality to measure the unobservable variable and go by the name of *item analysis*. The different approaches to item analysis refer to different model of scaling. Actually, the selected item analysis procedure allows a scaling model to be assessed.

Each scaling model represents a design aimed at consistently developing a new measure (Nunnally, 1978) by verifying items' properties, including dimensionality, internal consistency, and convergent/discriminant validity. In particular, each scaling model aims at:

- Testing the underlying conceptual model
- Reestablishing the unity of the concept of interest
- Synthesizing the multiple items (defining the synthetic value to be assigned to each case)
- Defining the continuum on which each case can be placed in a meaningful, interpretable, and manageable way in terms of ► **reliability**, validity, and **generalizability**.

Consequently, a scaling model is defined by methods and techniques aimed at synthesizing the group of items in order to make them meaningful and manageable.

In order to select the appropriate scaling model, the following criteria should be taken into account (McIver & Carmines, 1979; Maggino, 2009; Netemeyer, Bearden, & Sharma, 2003):

- *Adopted scaling technique*, comparative or non-comparative (Maggino, 2009).
- *Nature of data*. The different scaling procedures can be distinguished according to the classical classification of subjective data, theorized by Coombs (Coombs, 1950, 1953, 1964; Jacoby, 1991; McIver & Carmines, 1979): *single stimulus*, *stimulus comparison*, *similarities*, and *preferential choice*.
- *Dimensionality*. It is related to the complex nature of the variable of interest; each dimension refers to different aspects of the characteristic. The concept of “dimensionality” is quite complex, because its meaning is mainly and essentially theoretical. In this perspective, two different kinds of models can be distinguished:

Unidimensional: In this case, the definition of the considered characteristic assumes a unique, fundamental underlying dimension.

Multidimensional: In this case, the definition of the considered characteristic assumes several underlying aspects (dimensions) (The notion of dimensionality is present in quality of life studies and social sciences but also in others; concerning this, we can refer to unidimensional attributes as length and weight and multidimensional attributes like color and velocity).

The correspondence between the defined dimensionality and the selected items has to be demonstrated empirically by testing the selected scaling model.

- *Standard of measurement*, concerning the treatment of the multiple items and the assignment of the synthetic value (the final score can be assigned to individuals or to objects).

Table 1 allows the correct item analysis approach to be selected consistently with the reference scaling model (Maggino, 2009).

Item Analysis, Table 1 Item analysis approaches according to the different scaling models (from Maggino, 2009)

Scaling models → selection table					
		Criteria		The choice	
(1) How the response score has been captured?		(2) How data are interpreted?		(3) What is the nature of the measured characteristic?	
ITEM ANALYSIS APPROACH (Criterion applied for testing the model)					
scaling technique	nature of data	dimensionality	standard of measurement	Scaling models	
Non-comparative	Single-stimulus	Uni	Cases	Uni-dimensional	Additive Internal consistency
Non-comparative	Single-stimulus	Multi	Cases	Multidimensional	Dimensionality of the items
Comparative (pair comparison or rank-order)	Stimulus comparison	Uni	Objects	Thurstone model (differential scale)	Metrics between items
Comparative (rank-order or comparative rating)	Stimulus comparison	Uni	Objects	Q methodology	Scalogram analysis; reproducibility, scalability and ability to predict
Non-comparative	Single-stimulus	Uni	Cases and objects	Guttman	Cumulative Regionality and contiguity
		Bi	Cases and objects	Multidimensional Scalogram Analysis (MSA)	
Non-comparative	Single-stimulus	Uni	Cases and objects (without aggregating)	Partial Ordered Scalogram Analysis (POSAs)	Deterministic Correct representation
		Bi	Cases and objects	Monotone (one or more parameters) e.g., IRT scale	
Comparative (pair comparison)	Similarities	Multi	Objects	Multidimensional scaling	• parameters estimation (maximum likelihood) • goodness of fit (misfit and residuals analysis)
Comparative	Preferential choice	Uni & Multi	Cases and objects	Unfolding	Goodness of fit of distances to proximities (stress, alienation)
					Goodness of fit of distances to ordinal preferences

Cross-References

- Guttman Scale
- Multidimensional Scaling
- Reliability
- Response Format
- Scalogram Analysis

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Item Bias

- Differential Item Functioning (DIF)

Item Discriminant Validity

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Definition

Item discriminant validity is the correlation between an individual item and other scales, excluding its own scale.

Description

Item discriminant validity is a type of validity that has been widely used in test theory and is the converse term to item ► convergent validity. It tests the level of divergence between an individual item and other scales, excluding its own scale. On the other hand, item ► convergent validity accesses the magnitude that an item correlates to its own scale. These indices provide references for test constructors to rewrite, modify, or eliminate items.

This concept has become a widely used method and been added perspective of probability test. It is suggested that the correlations of items with their own scale should be higher than two standard errors or more than with another scale (Howard, 1962). In practice, item discriminant validity is mostly applied in accessing the “success rate” of scales. Success rates are computed for each scale as the percentage of items passed relative to the total number of item tests (McHorney, 1994).

For example, item discriminant validity is used in the validation of SF-36, a generic quality of life measurement tool, which includes eight subscales such as physical functioning, vitality, social functioning, and role limitations due to emotional problems (Ware & Sherbourne, 1992). By using data from the Medical Outcomes Study (MOS), the authors employed the

assessment of SF-36 on 3,445 patients. 92.5 % of 6720 item-discriminant-validity tests passed (significantly higher than two standard errors; 99.5 % items ranked higher than two standard errors but were not significant) (McHorney, 1994). This outcome shows that items of SF-36 are well distinguished from other scales.

Item discriminant validity has also been reproduced in validations of translation, cultural adaptation, and preliminary psychometric evaluation of SF-36 for countries taking mental health scale, for example, Denmark (97.5 %), Germany (97.5 %), the Netherlands (100 %), Italy (97.5 %), France (97.5 %), Japan (95 %), Sweden (100 %), Norway (100 %), and the United States (100 %). A further study using meta-analysis including 11 countries confirmed that large item discriminant validities are consistent across country and culture (Gandek et al., 1998).

Cross-References

- ▶ [Convergent Validity](#)
- ▶ [Validity, Statistical](#)

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Item Nonresponse

- ▶ [Missing Data](#)

Item Response Theory

- ▶ [Response Format](#)

Item Response Theory [IRT]

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Synonyms

[Latent trait theory](#); [Rasch analysis](#) and [Item Response Theory \(IRT\)](#)

Definition

Item response theory (IRT) provides both a theory for how to design a measure of a quality of life domain and a methodology for how to evaluate the psychometric properties of and how to score respondents on the QOL measure. IRT models describe, in probabilistic terms, the relationship between an individual's response to a survey question and his or her standing on the quality of life domain being measured by the survey. Also known as latent trait theory, IRT is typically applied to domains that are unobservable (i.e., latent) that require multiple questions (items) to measure the quality of life domain such as satisfaction with life or depressive mood. IRT is recognized as a valuable analytic tool to evaluate the psychometric properties of a quality of life measure, to test for differential item functioning (DIF), and to design quality of life item banks that serve as the foundation for computerized adaptive testing (CAT).

Description

To advance the science of quality of life (QOL) research, we need high-quality measures that are precise, valid, and efficient to inform decision making in research, healthcare delivery, and policy making. Both qualitative methods (e.g., focus groups, cognitive interviewing) and quantitative methods are required to design a high-quality measure as each provides a unique perspective on how a measure performs for capturing the relevant QOL domain. In QOL research, self-report measures are recognized as the gold standard for collecting QOL data. Careful attention is paid to designing and testing the QOL measure to ensure it can be understood by people of low education levels and of different race/ethnic/cultural background. There are multiple quantitative methods available to an instrument designer for evaluating the psychometric properties of a QOL measure; they should not be viewed as competing analytic tools but rather as complementary perspectives on how the QOL measure is performing. One of the more advanced and dynamic quantitative methods is item response theory (IRT).

IRT provides a theory for designing a measure of a quality of life domain, a methodology for evaluating a measure's psychometric properties, and a method for scoring respondents on the domain being measured. IRT models describe, in probabilistic terms, the relationship between an individual's response to a survey question and his or her standing on the quality of life domain being measured by the survey. Also known as latent trait theory, IRT is typically applied to domains that are unobservable (i.e., latent) that require multiple questions (items) to measure the quality of life domain (e.g., satisfaction with life, depressive mood). More concrete or observable domains such as income level, smoking status, or race/ethnicity where a single item or direct questioning could be applied (e.g., "How many cigarettes have you smoked in the past 30 days?") would not benefit from IRT. The latent domain, or trait, being measured is symbolized in IRT by the Greek symbol theta (θ). A person's standing or level on the QOL domain (θ) gives rise to their

responses to the questions in the QOL measure. To put it another way, a person's response to a question (item) is conditional on their level on the QOL domain. Analogous to an effect indicator model, the questions/items in a QOL measure will be correlated with each other as they are all measuring the same latent domain (θ). IRT models will characterize each item in a measure with a set of properties that describe what levels of the latent QOL domain are captured by the item and how well the item discriminates among individuals at different levels of θ . IRT scores individuals based on their responses to each of the items in the measure taking into account the IRT properties of the item (threshold, discrimination).

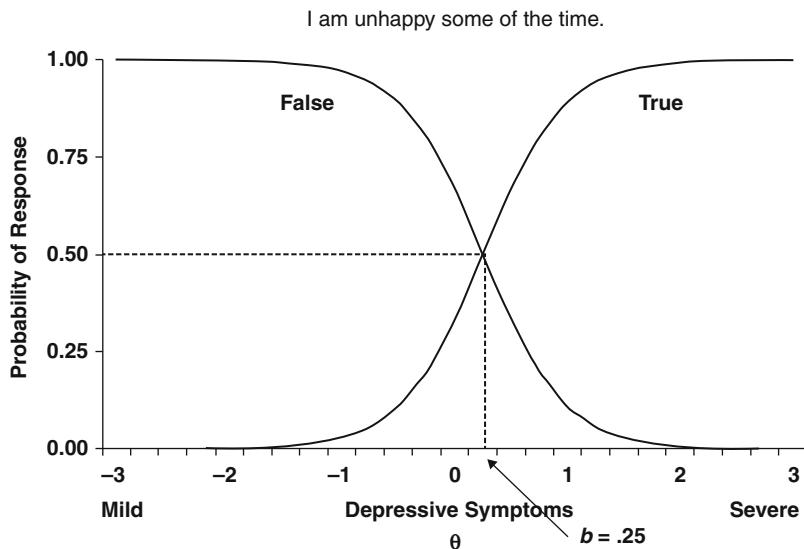
With this introduction as backdrop, the next section provides an overview of the basic concepts of IRT including model and item characteristics, assumptions underlying the model, and differences between the classical approach and IRT approach to QOL measure development. Following this overview, IRT-based methods for evaluating questionnaire properties, testing for differential item functioning, and designing QOL item banks are discussed.

Item Response Theory Model Basics

Item Response Theory Model: Each item (question) in the QOL measure is modeled with a set of parameters that describe how the item performs for measuring different levels of the QOL domain. For example, "I don't seem to care what happens to me" would have IRT model properties reflecting its informativeness in the measurement of individuals with high levels of depressive mood, and a question such as "I am unhappy some of the time" would have IRT model properties reflecting it as informative for measuring people with low levels of depressive mood. Each item in a measure is fit with its own IRT model.

The probabilistic relationship between individuals' responses to an item and their level on the latent construct is expressed by the IRT model item response curves (also referred to as item characteristic curves, category response curves, or item trace lines). For example, Fig. 1

Item Response Theory [IRT], Fig. 1 IRT item characteristic curves for the item, “I am unhappy some of the time”



presents the IRT response curves for the item “I am unhappy some of the time,” which has two responses, “false” and “true.” This item is an indicator of a person’s level of depressive mood, which is represented along the horizontal axis in Fig. 1 and denoted by θ .

Individuals vary in their level of depressive mood from those experiencing mild depressive symptoms (located on the left side of the θ continuum in Fig. 1) to individuals with severe depressive symptoms (located on the right side of the θ continuum). Numbers on the θ axis are expressed in standardized units, and for the illustrations in this discussion, the mean depression level of the study population is set at zero, and the standard deviation is set to one. Thus, a depression score of $\theta = 2.0$ indicates that a person is two standard deviations above the population mean and reports severe depressive symptoms. The vertical axis in Fig. 1 indicates the probability, bound between 0 and 1, that a person will select one of the item’s response categories. Thus, the two response curves in Fig. 1 indicate that the probability of responding “false” or “true” to the item “I am unhappy some of the time” is conditional on the respondent’s level of depressive mood. Depressed individuals on the right side of the θ

continuum will have a high probability for selecting “true,” whereas those with lower depressive mood are more likely to select “false” for this item.

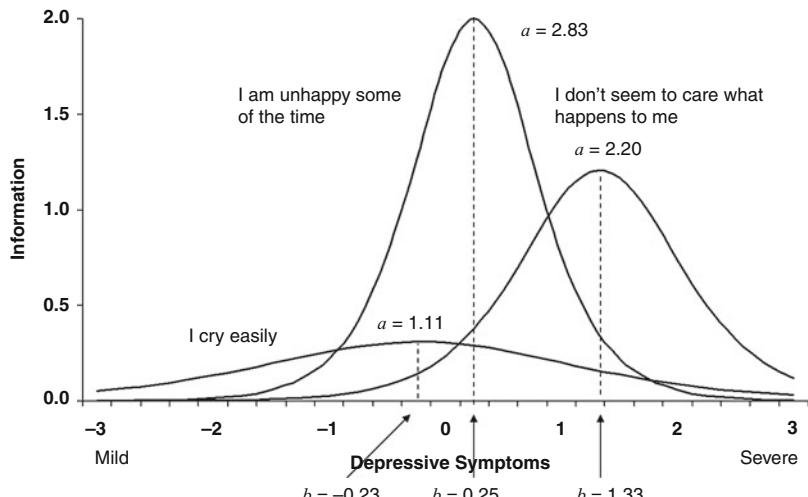
The response curves in Fig. 1 are logistic functions that model the probability, P , that a person will respond “true” ($X_i = 1$; for the monotonically increasing curve) to this item (i) as a function of a respondent’s level of depressive mood. This probability is a function of the relationship of the item to the measured construct (a) and the item severity or threshold (b) on the θ scale.

$$P(X_i = 1/\theta) = \frac{1}{1 + e^{a_i(\theta - b_i)}}$$

In IRT, a is referred to as the item discrimination or slope parameter, and b is referred to as the item difficulty, severity, or threshold parameter. When an item has just two response categories, the equation for the monotonically decreasing curve (i.e., the “false” response in Fig. 1) is a linear transformation of one minus the expression on the right side of the equation above.

The item threshold (b) parameter is the point on the θ scale at which a person has a 50 % chance of responding “true” to the item. In Fig. 1, the

Item Response Theory [IRT], Fig. 2 IRT item information curves for 3 items that measure depressive symptoms



item's threshold value is $b = 0.25$, which indicates that people with depressive mood levels a quarter standard deviation above the population mean have a 50 % chance of indicating "true" to the question.

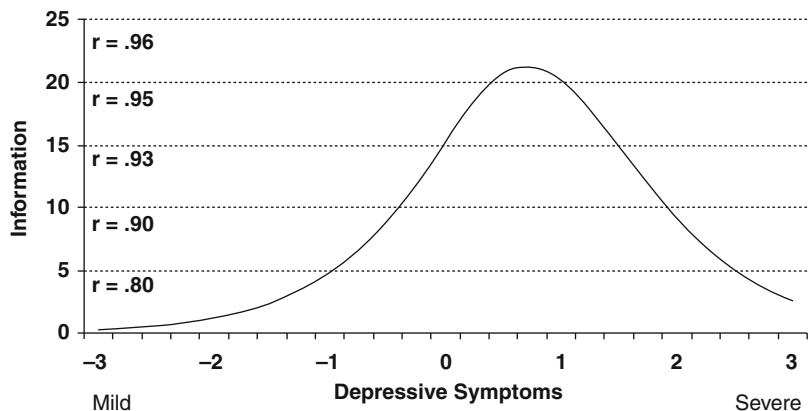
The discrimination (a) parameter indicates the magnitude of an item's ability to differentiate among people at different levels along the θ trait continuum. An item optimally discriminates among respondents who are near the item's threshold b . In Fig. 1, the slope at the inflection point (i.e., the point at which the slope of the curve changes from continuously increasing to continuously decreasing) is $a = 2.83$. The larger the a parameter, the steeper the curve is at the inflection point. In turn, steeper slopes indicate that the trace curve increases relatively rapidly, such that small changes on the latent variable (e.g., small changes in depression level) lead to large changes in item-endorsement probabilities. The a parameter also may be interpreted as describing the relationship between the item and the QOL domain being measured by the scale. Items with larger slope parameters indicate stronger relationships with the latent construct and contribute more to determining a person's score (θ).

IRT Model Information Function: Another important feature of IRT models is the information function (or curve), an index that indicates

the range over θ for which an item is most useful for discriminating among individuals. In other words, the information function characterizes the precision for measuring persons at different levels of the underlying latent QOL construct, with higher information denoting more precision. Graphs of the information function place individuals' trait level (θ) on the horizontal axis and information magnitude on the vertical axis. Figure 2 presents the item information functions that are associated with three depressive mood items.

The shape of the item information function is determined by the item parameters (i.e., a and b parameters). The higher the item's discrimination (a parameter), the more peaked the information function will be. Thus, higher discrimination parameters provide more information about individuals whose trait levels (θ) lie near the item's threshold value. The item's threshold parameter (b parameter) determines where the item information function is located. In Fig. 2, the item "I don't seem to care what happens to me" is informative for measuring more severe levels of depressive mood, while the item "I am unhappy some of the time" is informative for measuring more moderate depressive mood, and the item "I cry easily" is not informative for measuring any level relative to the other items.

Item Response Theory [IRT], Fig. 3 IRT Scale information curve that measures depressive symptoms



Because of the assumption of local independence (described below), the individual item information functions can be summed across all of the items in a scale to produce the test (or scale) information function. The scale information function for a 57-item depression measure is illustrated in Fig. 3. Along with the information magnitude indicated along the vertical axis in the graph, the associated reliability (r) is provided. Overall, the depression scale is highly reliable for measuring moderate to severe levels of depressive mood (i.e., when the curve is above reliability $r = .90$). However, the information function shows that scale precision decreases for measuring persons with low levels of depressive mood.

Family of IRT Models: There are well over 100 varieties of IRT models to handle various data characteristics such as dichotomous and polytomous response data, ordinal and nominal data, and unidimensional and multidimensional data (van der Linden, & Hambleton, 1997). There are also nonparametric and parametric IRT models. However, only a few have been used extensively in the QOL research fields. The common parametric unidimensional models include the one- and two-parameter logistic models for dichotomous response data (e.g., questions with responses such as true/false or yes/no) and the graded response model, partial credit model, rating scale model, nominal model, and generalized partial credit model for polytomous response

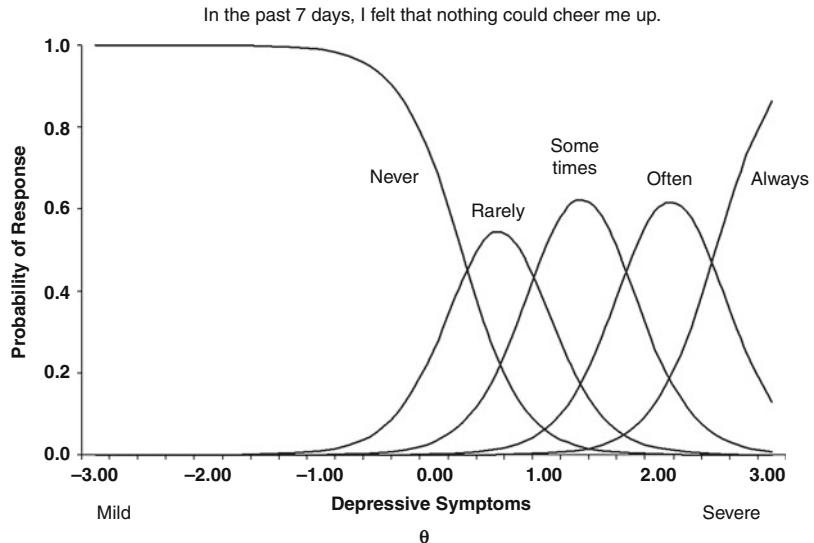
data (questions with two or more response categories such as a Likert-type scale).

Beyond the number of response categories the model is designed for, IRT models differ in the type of parameters that are allowed to vary across the items in a scale. All models allow the difficulty (or threshold) parameter to vary from item to item; however, some models constrain every item within a scale to have the same discrimination parameter. Models that constrain each item to have the same discrimination assume that all items have equivalent relationships with the underlying trait being measured by the scale. These models often are referred to as Rasch models, named after the Danish mathematician, Georg Rasch. The Rasch family of models includes the one-parameter logistic model, the rating scale model, and the partial credit model. Other models allow the discrimination parameter to vary from item to item to account for items having different relationships with the measured trait. These models include the two-parameter logistic model, the graded response model, the nominal model, and the generalized partial credit model. There are many other models that include additional parameters that account for other item characteristics. For example, the testlet response theory model includes a parameter that models the clustering effect due to locally dependent items. Several good resources are available for those wishing to learn more about the various IRT

Item Response Theory

[IRT], Fig. 4 IRT category response curves (or item characteristic curves).

For the item, “In the past 7 days, I felt that nothing could cheer me up”



models including publications by Embretson and Reise (2000); Thissen and Wainer (2001); van der Linden and Hambleton (1997); Bond and Fox (2007); Hambleton, Swaminathan, and Rogers (1991); and de Ayala (2009).

IRT models can also be applied to questionnaires that have polytomous response options (i.e., more than two response categories). Figure 4 presents IRT category response curves for the item, “In the past 7 days, I felt that nothing could cheer me up.” This item appears in a depression questionnaire. In Fig. 4, there is a curve associated with each of the five possible responses that models the probability of endorsing the response conditional on individuals’ levels of depressive mood. The item properties were estimated using the IRT graded response model, which includes a discrimination parameter. Also estimated are four threshold parameters (the number of threshold parameters is equal to the number of response options minus one). The threshold parameters determine the location of the response curves along the theta continuum.

The information function for the polytomous response item, “In the past 7 days, I felt that nothing could cheer me up,” is provided in Fig. 5. The curve indicates that this item performs well for discriminating among individuals with more severe levels of depressive mood and

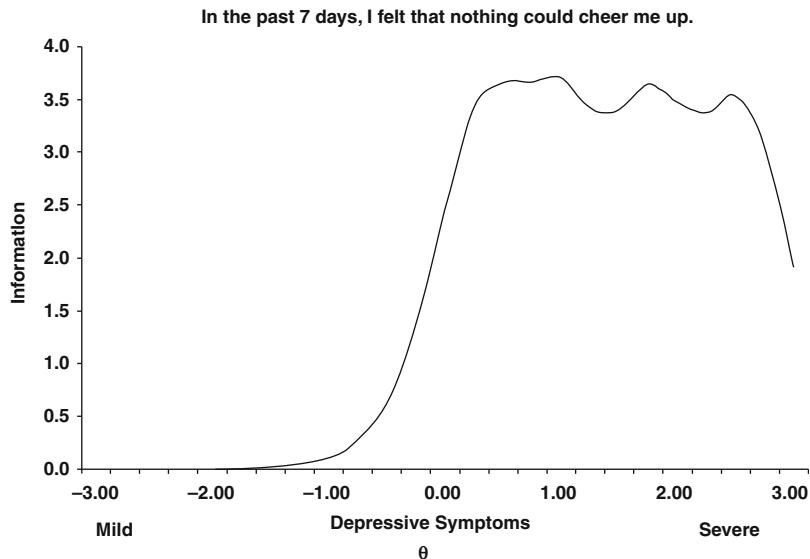
performs poorly for discriminating among individuals with low levels of depressive mood.

IRT Model Assumptions: The parametric, unidimensional IRT models described above make three key assumptions about the data: (1) unidimensionality, (2) local independence, and (3) monotonicity. It is important that these assumptions be evaluated before any IRT model results are interpreted. It should be noted, however, that IRT models are robust (i.e., resistant) to minor deviations from the assumptions and that no real data ever completely meet the assumptions.

The unidimensionality assumption posits that the set of items measures a single continuous latent construct (θ). In other words, a person’s level on the QOL domain gives rise to a person’s responses to the items in the scale. This assumption does not preclude a set of items having a number of minor dimensions (subscales), but it does assume that one dominant dimension explains the underlying structure of the response data. Unidimensionality can be evaluated by performing an item-level factor analysis that evaluates the factor structure underlying the observed covariation among item responses. If multidimensionality exists, the investigator may want to consider dividing the scale into subscales based on both theory and the factor structure

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[IRT], Fig. 5 IRT item information curve for the item, “In the past 7 days, I felt that nothing could cheer me up”



provided by the factor analysis or consider using multidimensional or hierarchical IRT models.

The assumption of local independence means that the only systematic relationship among the items is explained by the conditional relationship with the latent construct (θ). In other words, local independence means that if the trait level is held constant, there should be no association among the item responses. Therefore, differences in item responses are assumed to reflect differences in the underlying trait. Violation of this assumption may result in parameter estimates that differ from what they would be if the data were locally independent; thus, selecting items for scale construction based on these estimates may lead to erroneous decisions.

The assumption of monotonicity means that the probability of endorsing or selecting an item response indicative of higher levels of theta should increase as the underlying level of theta increases. Approaches for studying monotonicity include examining graphs of item mean scores conditional on “rest scores” (i.e., total raw scale score minus the item score) or fitting a nonparametric IRT model to the data that yields initial IRT probability curve estimates.

As noted earlier, the better the data meet these assumptions, the better the IRT model will fit the

data and reflect the response behavior. The fit of the model is often examined through the comparison of model predictions and the observed data (Edelen & Reeve, 2007). A number of fit indices are available that calculate residuals between observed and expected response frequencies. Many data characteristics (e.g., data distribution, sample size, number of response categories) can affect a fit statistic’s performance, however, and there is no universally recommended fit statistic for assessing data fit to an IRT model. The ultimate issue is to evaluate the extent to which misfit affects model performance in the valid scaling of individual differences (Hambleton & Han, 2005).

Applications of Item Response Theory**Modeling for Quality of Life Research**

Evaluation of Psychometric Properties of Quality of Life Measures: IRT modeling provides a powerful analytic tool for evaluating the psychometric properties of a QOL measure. Application of IRT models, however, should occur after a careful review of the data using classical test theory methods including evaluation of correlation matrices, reliability, and factor analytic results. IRT models complement these traditional tools by focusing on how each item performs within a QOL measure. The IRT item

characteristic (or category response) curves help questionnaire developers evaluate how well each item's response categories function in measuring different levels of the targeted construct. These curves also suggest whether more or fewer response categories might be needed (contrast Figs. 1 and 4).

The IRT information curves serve as a useful tool for instrument developers to evaluate how well an item or measure functions for measuring different levels of the QOL domain. Developers can use the information curves to weed out uninformative questions or eliminate redundant items that provide duplicate levels of information across the θ continuum. The impact on precision of item removal can be evaluated easily by inspecting the scale information function. Also, information curves allow developers to tailor their instrument to provide high information (i.e., precision) for measuring their study population. For example, for a developer wanting high precision in measuring persons across levels of depressive mood (i.e., high information across all levels of the construct continuum), the information function in Fig. 3 suggests the need to add more items to the scale (or more response options to existing items) that differentiate among people with mild depressive mood.

Assessing Measurement Equivalence: The questions in a survey are carefully written to ensure that they are tapping into the same QOL domain no matter which population is responding to the questions. For example, considerable care is taken when a QOL instrument is translated from one language to another. Despite this careful translation process, it may turn out that although the words are the same, the two populations hold culturally different views of the question. For example, a common finding in depression questionnaires is that Hispanics are more likely to respond positively to a question such as "I feel like crying" than are non-Hispanics despite controlling for differences between the two populations' depression levels. This finding may be due to crying being more socially acceptable in Hispanic cultures.

Differential item functioning (DIF) is a condition in which an item functions differently

for respondents from one group than for another even after controlling for differences between the groups on the measured QOL domain. In other words, respondents, with similar levels on a latent trait but who belong to different populations, may have different probabilities of responses to an item. Instruments containing such items may have reduced validity for between-group comparisons because their scores may indicate attributes other than those the scale is intended to measure (Thissen, Steinberg, & Wainer, 1993).

IRT provides a powerful framework for identifying DIF items. In IRT modeling, item parameters are assumed to be invariant to group membership. Therefore, differences between the curves, estimated separately for each group, indicate that respondents at the same level of the underlying trait, but from different groups, have different probabilities of endorsing the item. More precisely, DIF is said to occur whenever the conditional probability, $P(X)$, of a correct response or endorsement of the item for the same level on the latent variable differs for two groups.

DIF analysis has been used in QOL research to detect measurement equivalence in item content across cultural/racial groups, males and females, age groups, between two administration modes such as paper-and-pencil versus computer-based questionnaires, and from one language translation of a questionnaire to another.

Linking Two or More Scales: One of the challenges in QOL research is that different studies use different QOL questionnaires that measure the same QOL domains. Combining or comparing results across studies that use different questionnaires in a meta-analytic study is very difficult because the questionnaires may have different lengths, different number of response options, and different types of questions with different psychometric properties. IRT modeling provides a solution through its ability to link the item properties from different scales to a common metric. Several methodologies exist for linking two (or more) instruments. Ideally, one would administer both instruments to a representative sample and then IRT calibrate (obtain the properties of) the items

simultaneously. Alternatively, a set of items that are common to both instruments can be selected as anchors. The anchor items are used to set the metrics to which items not common to both instruments are scaled. Therefore, instruments with a different number or difficulty of items can be linked by responses to a common set of anchor items.

These applications take advantage of a key feature of IRT models, which is the property of “invariance.” If IRT model assumptions are met, item parameters are invariant with respect to the sample of respondents, and respondent scores are invariant with respect to the set of items used in the scale. After the IRT item parameters are estimated (i.e., calibrated), researchers can choose the most salient items to target a person’s level of the QOL domain being measured, thus decreasing the number of items needed. This method results in different groups receiving different sets of items; however, any given set of items calibrated by the best-fitting IRT model should yield scores that are on a similar metric.

Building Item Banks and Computerized Adaptive Testing: The IRT principle of invariance is the foundation that researchers use to develop computerized adaptive tests (CATs). CATs yield tailored instruments that precisely estimate persons’ levels on a QOL domain (e.g., depression) with fewer items. To accomplish this, a CAT has access in its data bank to a large pool of items that have been carefully selected and calibrated by IRT models (called an *item bank*).

Based on a person’s response to an initial item, the CAT makes a gross estimate of the person’s trait level. It then selects and administers the most informative item from the item bank for measuring that level of trait. After each response, the estimate of trait level is updated, the computer selects and administers the next most informative item from the item bank, and this continues until a minimal standard error is reached or a maximum number of items have been administered. The benefits of CAT technology include decreased respondent burden,

reduced “floor and ceiling” effects, instant scoring, and widespread availability of this technology on many platforms (e.g., Internet, handheld devices, computer-assisted telephone interviewing). CAT thus leverages the strengths of IRT modeling and the power of new information technology to rapidly capture and report an individual’s quality of life that can be used to inform decision making in healthcare delivery settings or comparative effectiveness research studies.

Cross-References

- ▶ [Rasch Analysis](#)
- ▶ [Rasch Polytomous Models](#)

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