



# The Good Life Versus the “Goods Life”: An Investigation of Goal Contents Theory and Employee Subjective Well-Being Across Asian Countries

Matthew J. Monnot<sup>1</sup> · Terry A. Beehr<sup>2</sup>

Accepted: 26 August 2021  
© The Author(s), under exclusive licence to Springer Nature B.V. 2021

## Abstract

Asian economies have experienced extraordinary growth in recent decades, and yet individual employee happiness and satisfaction has remained relatively stagnant. This can be explained in part by a related shift toward materialist goal aspirations. Goal Contents Theory (GCT) suggests that not all goals are created equal: intrinsic goal orientations are more strongly related to subjective well-being, for example. Using one of the most comprehensive surveys of Asia ever conducted, the current study examines the central tenets of GCT in several ways. Results show intrinsic (i.e., health, safety and security, affiliation, community feeling, self-acceptance and growth) relative to extrinsic goal orientation (i.e., money and materialism) is more strongly related to higher levels of satisfaction with one's income, job, life, and accomplishments. Additionally, results of linear and nonlinear modeling display the diminishing marginal utility of income (the most widely utilized extrinsic incentive) on satisfaction. This curvilinear effect is exacerbated by extrinsic orientation. Finally, Multilevel Item Response Theory (MIRT) analysis confirmed a hierarchical ordering of intrinsic need strength and displayed the positive effect of national human development (i.e., Human Development Index) on individual intrinsic goal orientation. Results demonstrate the importance of organizational and national policies that emphasize human as well as economic development.

**Keywords** Intrinsic needs · Motivation · Goal contents theory · Job satisfaction · Well-being

---

✉ Matthew J. Monnot  
mjmonnot@usfca.edu

Terry A. Beehr  
beehr1ta@cmich.edu

<sup>1</sup> School of Management, University of San Francisco, San Francisco, CA, USA

<sup>2</sup> Psychology Department, Central Michigan University, Mount Pleasant, MI, USA

## 1 Introduction

Asia represents the largest continental economy in the world and is comprised of the largest potential workforce of any region (United Nations, 2014). Asian nations have experienced some of the greatest and longest economic booms of any in the global economy in recent decades (e.g., Cumings, 2005; Hane, 1996; “IMF Survey”, 2016). Substantive economic reforms and restructuring, such as in China and India, have bolstered the region (Brandt & Rawski, 2008; Di Lodovico et al., 2001), and consistent performance in its more developed market economies such as Hong Kong, South Korea, Singapore, and Taiwan have buoyed the economies of the more volatile nations (Page, 1994). Overall, the expansion of free trade agreements coupled with rapidly deployed Foreign Direct Investment (FDI) has facilitated sustained economic growth (Chang & Rhee, 2011; Samrat & Kumarjit, 2012).

Unfortunately this unrivaled economic growth has been not been synchronous with individual satisfaction, happiness, or self-reported well-being (each subsumed under the broader term *subjective well-being* throughout the manuscript) (Diener et al., 1999). Early research pointed to a paradoxical effect of stagnant levels of happiness during periods of economic growth (Easterlin, 1974). More recent research suggests that, in general, improvements in national wealth lead to modest increases in levels of well-being, particularly in poorer nations (Diener, & Diener, 1995). However even more paradoxical, a recent study suggests Chinese Gross Domestic Product (GDP) growth was inversely related to levels of happiness (Brockmann et al., 2009). Therefore it is important to understand the mechanisms that account for the discordant relationship between economic growth and individual well-being.

One reason for the lagged, modest, or sometimes inverse trend in GDP and individual subjective well-being may be changes in individuals’ aspirations, or goal orientations. Global liberalization of market policy has been a driving force behind the aforementioned growth. Perhaps a natural byproduct of this economic growth was a shift in societal value systems. Free-market driven growth has typically been coupled with a change in societal values toward those more conducive to individual competition for resources (Schwartz, 2006). Indeed, reports suggest Asian nations have seen an increase in individual financial and material aspirations in recent years (Durvasula & Lysonski, 2010; Gu & Hung, 2009; Podoshen et al., 2010; Zhan & He, 2011).

A series of studies suggest that there may be potential drawbacks to financial aspirations and that subsequent financial success is less beneficial to one’s well-being than intrinsically rewarding accomplishments (Dittmar et al., 2014; Kasser & Ryan, 1993, 1996). The majority of research that supports the link between materialistic goals and lower well-being has been conducted in western nations, leading some to characterize this relationship as a largely American phenomenon (Kasser & Ryan, 1993; Tang et al., 2014). In short, it has been argued, American employees and consumers pursue a “goods life” instead of a good life—resulting in detriments to well-being (Kasser, 2004). Of the studies conducted outside of the United States (Deci et al., 2001; Ryan et al., 1999; Speck & Roy, 2008), very few have examined the relationship between relative extrinsic versus intrinsic orientation and well-being in Asia (Kim et al., 2003; Monnot, 2017; Wong et al., 2003). The current study offers the most comprehensive empirical examination of this phenomenon outside North America and Western Europe, and has the advantage of using a relatively comprehensive sample of Asian nations, where there are a variety of economic and cultural forms, many of them different from the West. In addition the current study examines the hierarchical ordering of intrinsic need satiation, which provides initial evidence for an Asia-specific

hierarchical ordering of needs. Finally, the link between human development at the national level and need satiation at the individual level are also examined.

## 2 Theoretical Background

Self-Determination Theory (SDT) (e.g., Deci & Ryan, 2000) argues that there are specific human needs that when satisfied enable positive human development and health, but when these needs are hindered then subsequent health and development decline. A micro-theory of SDT, Goal Contents Theory (GCT), extends this position to goal-directed behavior. Specifically, if goals are intrinsically oriented then they should be beneficial, and if they are extrinsically oriented then they should be less beneficial or even negative.

Empirical evidence for GCT has been proffered under the labels of intrinsic versus extrinsic aspirations (e.g., Dittmar et al., 2014; Kasser & Ryan, 1993, 1996), intrinsic versus extrinsic value orientation (e.g., Sheldon & Krieger, 2014; Sheldon et al., 2010), and intrinsic psychological needs (e.g., Tay & Diener, 2011; Vansteenkiste et al., 2007). While each of these research streams may use slightly different semantics, they are all focused on the study of goal contents as outlined by GCT. Additionally, each can be subsumed under the broader long-standing research agenda on the intrinsic versus extrinsic motivational dichotomy that has persisted in organizational psychology and behavior (Deci & Ryan, 2000; Dyer & Parker, 1975; Herzberg et al., 1957; Maslow, 1943). The defining features of the intrinsic versus extrinsic dichotomy relate to both the source of behavior and the individual effects of those behaviors. Whereas intrinsically oriented motives are driven by one’s own volition to satisfy evolved needs, extrinsically oriented motives are driven by forces external to oneself (Brief & Aldag, 1977; deCharms, 1968).

Additionally, satiation of intrinsic motives is, according to GCT, theorized to support individual performance and well-being. Alternatively, GCT suggests that external motives are associated with lower levels of well-being and some researchers suggest that extrinsic incentives actually have the potential to decrease well-being and performance (Deci & Ryan, 2000; Vansteenkiste et al., 2010). There is extensive empirical evidence, particularly among college students, to support the claims of GCT. Those who value extrinsic (e.g., money) rather than intrinsic (e.g., personal growth) goals display greater levels of negative outcomes such as anxiety and depression (Kasser & Ryan, 1993, 1996; McHoskey, 1999) and lower levels of positive outcomes such as self-esteem (Sheldon & Kasser, 1995) and performance (Vansteenkiste et al., 2004). Although these findings have been extended primarily to European countries (Martos & Kopp, 2012; Ryan et al., 1999; Schmuck et al., 2000; Unanue et al., 2014; Vansteenkiste et al., 2007), only one study has examined an Asian nation (i.e., China) (Monnot, 2017).

### 2.1 Goal Contents Theory and Well-Being

A central thesis of GCT is that intrinsic and extrinsic goals, or aspirations, have differential effects on individual well-being (Vansteenkiste et al., 2010). Previous motivational theories (e.g., Bandura, 1997; Locke & Latham, 2002; Vroom, 1964) suggest that the achievement of goals is conducive to psychological wellness as long as the goals are valued. GCT departs from these theories in the proposal that it is precisely the content of goals themselves, regardless of individual value orientation, that determines conduciveness to wellness. It may be, for example, that a strong goal *is* something the person values, so that

assessing values independently may be redundant. There is a growing body of literature to support the contention of GCT that universal evolved human needs can be defined broadly as those that are intrinsic, whereas extrinsic incentives are less endorsed and less inherently beneficial. Namely, a series of experiments offer support for the GCT contention that intrinsically oriented goals are more beneficial in terms of performance outcomes (Vansteenkiste et al., 2004; Vansteenkiste et al., 2006). Likewise matching individual aspirations with assigned goals did not prove beneficial (Vansteenkiste et al., 2008). Thus it appears consideration of value orientation may not enhance beneficence of goal orientation.

The reason that intrinsic goals are positively related to individual performance and well-being is because they correspond with the satiation of universally evolved psychological needs. Intrinsic goals are, according to GCT, a manifestation of the common human growth tendency proposed by its parent theory, SDT (Deci & Ryan, 2000). Intrinsic goals represent needs that are naturally occurring in human beings, such as affiliation, community, self-acceptance, and growth (Ryan & Deci, 2000a, 2000b). Extrinsic goals, on the other hand, are secondary in the sense that they are not natural and must be learned by humans. The prototype is economic goals, which are portrayed by wealth and material status sometimes encouraged by and learned from one's social and cultural surrounding (Dittmar, 2007). Deprivation of intrinsic needs is associated with maladaptive identity formation, sometimes enhancing the pursuit of extrinsic goals, which then become a source of identity and self-worth (La Guardia, 2009). Unfortunately extrinsic goals do not provide the level of human fulfillment that is typically associated with intrinsic goals. We note the commonly observed lack of a strong correlation between wealth and well-being, for example (e.g., Diener & Oishi, 2000). Therefore individuals who aspire to universally evolved intrinsic human goals will exhibit greater well-being.

**Hypothesis 1:** Employees' intrinsic need strength will be positively related to their well-being (i.e., job satisfaction, income satisfaction, life satisfaction, feeling of accomplishment).

## 2.2 Goal Contents Theory and Income

Financial remuneration is central to incentive systems in the global marketplace, and some researchers argue that it is also the strongest incentive (Locke et al., 1980). Unsurprisingly and consistent with GCT, however, this most widely used incentive displays only a very modest positive relationship with job satisfaction (Judge et al., 2010). Research even shows that this type of incentive system tends to be related to some strain or ill health variables related to employees' (poor) well-being (Ganster et al., 2011). As noted earlier, similar evidence exists for the weak association between income and life satisfaction (Diener & Biswas-Diener, 2002; Diener & Oishi, 2000; Diener et al., 1993; Diener et al., 1999; Suh et al., 1998).

The linear relationship between income and life satisfaction, while positive, may be weak because it is also curvilinear when modeled with a quadratic function (Diener et al., 1993; Kahneman & Deton, 2010). This curvilinear relationship has been extended to job satisfaction, confirming similar results across several Chinese samples (Monnot, 2017). The effect has been explained as a hedonic adaptation resulting from diminishing marginal utility—wherein financial wealth becomes of less perceived importance the more one has of it (Diener et al., 1993; Monnot, 2017; Veenhoven, 1991). Because that evidence is

limited however, the current study will examine this potentially curvilinear relationship in a large stratified sample of Asian nations.

**Hypothesis 2:** The relationship between income and job satisfaction is curvilinear.

While job satisfaction is an important outcome to understand (Judge et al., 2001), a more empirically precise test of diminishing marginal utility would utilize satisfaction with the actual incentive itself—namely income satisfaction. Therefore the previous hypothesis is extended to income satisfaction in order to avoid criterion contamination (Austin & Villanova, 1992; Brogden & Taylor, 1950), more closely match the independent variable and criterion, and extend previous research (Monnot, 2017) across Asia.

**Hypothesis 3:** Income has a diminishing marginal utility that is exacerbated by extrinsic orientation (i.e., espoused income importance), such that the curvilinear relationship found in the previous hypothesis will be more pronounced for those who state that income is of importance.

### 2.3 The Hierarchical Structure of Intrinsic Needs

Much empirical research has been dedicated to understanding the direct effects of intrinsic needs on individual outcomes (e.g., Deci & Ryan, 2000). While GCT proposes that intrinsically oriented goals are more inherently beneficial than extrinsically oriented goals, there is no specification as to which intrinsic needs are more inherently desirable (or beneficial) than others. One theory of a hierarchy of needs is well-known in both academia and among the public at large (e.g., business managers). Maslow (1943) posited a hierarchical ordering of needs, including intrinsic needs based on his observations of students and others in his life and on reading about historical figures. While arguably an intuitive model, until recently empirical support has been quite limited. Utilizing popular frameworks (Csikszentmihalyi, 1988; Maslow, 1954; Ryan & Deci, 2000b; Ryff & Keyes, 1995) to compare relative effects of intrinsic need satisfaction, a large-scale study found general support for Maslow’s proposed hierarchy of lower and higher order needs. Maslow’s needs are purported to be basic human needs, as are the intrinsic needs in GCT. Specifically, his lower order needs (e.g., basic physiological, safety) tend to be fulfilled before moving to subsequent higher order (e.g., social, autonomy) needs (Tay & Diener, 2011).

There has long been a call for such fundamental Western management theories to be applied to other countries and cultures (Hofstede, 1980b) and not take for granted that they apply universally. Although humans’ basic intrinsic needs are purported to be universal and therefore independent of culture (Ryan et al., 1999; Schmuck et al., 2000; Vansteenkiste et al., 2007), the impact of culture on the order of needs has yet to be explored. One attempt at describing the culture-bound ordering of intrinsic needs has described a Chinese hierarchy of needs (Nevis, 1983a). This reconceptualization of Maslow’s hierarchy adapts this structure to Asian culture, wherein self-esteem is excluded and others are reordered. Using historical analysis and management theory, it argues that the highest Chinese need is a form of self-actualizing in the service of others (rather than self-interested self-actualization). That is to say the submission to superordinate collective goals is expression of oneself. Additionally, affiliation is positioned at the bottom of the hierarchy below physiological needs. Initial limited empirical support was found for the Chinese structure of needs (Nevis, 1983b). It should also be noted that the Chinese hierarchy of needs was

proposed very shortly after China's radical economic reforms that would eventually lead to such impressive economic growth and social change within the country (Nevis, 1983a, 1983b). Additionally, much of the historical analysis utilized to create a profile of Chinese society relied on sacrifices that took place during the Cultural Revolution in the late 1960s and early 1970s. It might be argued that during this time period the enactment of the need for affiliation was placed before the need for physiological fulfillment. However the idea that the need for social affiliation is inherently more important than basic physiological self-preservation is counter to fundamental understanding of evolution and survival (Buss, 2005).

In general, it is implausible to suggest that physiological need fulfillment is not the basic prerequisite for additional need fulfillment, at least to the extent that human life is sustainable. The current study borrows, and modifies, the Chinese need structure (Nevis, 1983a, 1983b). Basic physiological needs (i.e., food, health) are expected to be of primary importance. Affiliation, however, is expected to follow basic physiological needs because collectivism is a defining cultural value dimension of many Asian cultures (Hofstede, 1980a; House et al., 2004). Higher order intrinsic needs (e.g., self-acceptance and growth) are expected to be sought only after lower order intrinsic needs (or top of the pyramid).

**Hypothesis 4:** Intrinsic needs in Asia are ordered hierarchically, such that basic physiological needs are first, followed by need for affiliation, and then higher order needs (i.e., self-acceptance and growth, community).

## 2.4 National Development and Intrinsic Need Strength

Macro-economic development of a country generally has a positive influence on health and subjective well-being of its citizens. Both individual (Diener & Biswas-Diener, 2002; Diener & Oishi, 2000) and national indices of wealth (Zagorski et al., 2014) display a positive association with overall life satisfaction and well-being. While there are certainly many contingencies that influence the effect of national development on well-being (e.g., Kööts-Ausmees et al., 2013; Morrison et al., 2011), there is abundant evidence to suggest that nations' GDPs (Gross Domestic Product) as well as GDP per capita, is a positive correlate of well-being (Diener et al., 2013). GDP is often used as an indicator of national economic development.

National financial resources and productivity, however, do not guarantee expenditures that benefit the general populace. The Human Development Index (HDI) is a more comprehensive measure introduced to more accurately approximate a nation's level of development. The idea behind the HDI can be summarized in a quote by the co-inventor of the index, who, in its initial inclusion in the United Nation's Human Development Report stated, "People are the real wealth of a nation" (United Nations Development, 1990). Rather than a purely financial indicator, the HDI assesses those things that many people believe are the requisite antecedents of well-being: health, education, and income. Previous studies suggest that there is more likely to be a positive association of income and well-being when individual physical and material welfare increase in tandem, rather than income alone (Diener et al., 2013). This would suggest that a more holistic indicator such as HDI is more appropriate for studies regarding individual happiness and well-being.

Although previous studies have examined the direct and moderating effect of HDI on levels of well-being (Basabe et al., 2002; Kööts-Ausmees et al., 2013), the current study is concerned with the impact of HDI on intrinsic need strength. According to hierarchy of

needs theories, the human motivation to fulfill a specific need is a function of one's level of individual development (Maslow, 1943), and this may hinge in large part on the resources available in one's environment. Therefore the strength of intrinsic need should be conditional on a nation's HDI.

**Hypothesis 5:** A higher national level of human development (as defined by the HDI) is associated with higher individual intrinsic needs strength.

### 3 Methods

#### 3.1 Sample

This current sample (Inoguchi, 2003–2007) represents one of the most comprehensive comparative surveys of Asia ever conducted. Data was collected using a multistage stratified randomly sampling methodology (Additional methodological details can be found at [www.asiabarometer.org](http://www.asiabarometer.org)). Participants ( $n=46,094$ ) represent countries across the four primary regions of Asia, including Central (Kyrgyzstan, Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan), Eastern (China, Hong Kong, Japan, Korea, Mongolia, Taiwan), South Eastern (Brunei, Cambodia, Indo, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam), and Southern (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka). Using the United Nations geoscheme for regional classification, and excluding the Middle East (which is sometimes referred to as Western Asia), this data includes nearly every United Nations country (i.e., Iran, North Korea, and East Timor were not included) in these four respective Asian regions. All data was collected via a face-to-face structured interview format.

The ratio of male ( $n=22,518$ ; 48.9%) to female ( $n=23,576$ ; 51.1%) respondents was approximately equal. The mean age was 38, with a range of 20 to 69 years of age. Of those who reported marital status, most respondents were married (72.1%), followed by single (22.2%), widowed (3%), and divorced or separated (2.6%). Of those who had completed some sort of educational program, a majority of respondents had completed education at the high school level or below (51.3%), while the rest received an undergraduate college degree or higher (12.4%) or vocational or technical school training (10%). Occupational status varied, with more than half of respondents identified either as manual workers (13.9%), clerical workers (9.4%), professionals or specialists (6.3%), self-employed in agriculture, forestry or fisheries (6.1%), sales (6%), vendors or street traders (5.4%), or small retail business owners (3.1%).

#### 3.2 Measures

##### 3.2.1 Intrinsic and Extrinsic Goals Orientations

After being presented with a list of twenty-five items, respondents were asked, “Of the following lifestyle aspects or life circumstances, please select five that are important to you”. Six subsets of items were identified as relevant to the current study. Responses were coded as 1 (mentioned) or 0 (not mentioned) and then summed for each index. These item subsets include five intrinsic and one extrinsic goal. The intrinsic orientations were labeled *Health Importance, Safety and Security Importance, Affiliation Importance, Community Feeling*

*Importance*, and *Self-Acceptance and Growth Importance*. The other subset is an extrinsic goal orientation labeled *Materialism Importance*. These items were constructed, and designated as “relative aspiration indices,” in order to be similar to previous measures (e.g., Duriez, 2011; Grouzet et al., 2005; Kasser & Ahuvia, 2002; Kasser et al., 2014; Martos & Kopp, 2012; Monnot, 2017; Sheldon & Krieger, 2014; Sheldon et al., 2004, 2010; Vansteenkiste et al., 2006).

Following previously developed methodology (Hinkin, 1998), an item pool was developed similar to previous scales (e.g., Grouzet et al., 2005; Kasser et al., 2014; Monnot, 2017), after which several Industrial-Organizational (I-O) Psychologists confirmed content adequacy. Psychology graduate students rated each item to confirm the previously defined item categories. Brief definitions were provided to these subject matter experts for Health (“To feel healthy and be free of illness”), Safety and Security (“To ensure physical safety”), Affiliation (“To have satisfying relationships with family and friends”), Community Feeling (“To improve the world”), Self-Acceptance and Growth (“To feel competent and autonomous”), and Materialism (“To be wealthy and materially successful”). Averages of ratings were computed (ranging from 1—“does not apply at all” to 7—“applies completely”). The criterion of an average rating of 5 or higher was required to retain items.

Sample items from the final scale include five intrinsic goal orientations; “Being healthy” (Health), “Being able to live without fear of crime” (Safety and Security), “Spending time with your family” (Affiliation), “Contributing to your local community or to society” (Community Feeling), and “Expressing your personality or using your talents” (Self-Acceptance and Growth); and one extrinsic goal orientation, “Owning a lot of nice things,” (Materialism).

### 3.2.2 Income

Respondents reported their gross annual household income during the previous year in local currency. Responses comprised a list of discrete ranges.

### 3.2.3 Subjective Well-Being

Several indices measuring individual subjective well-being were utilized in the current study. These included *Income Satisfaction*, *Job Satisfaction*, *Life Satisfaction*, and *Life Accomplishment*. These scales are described as follows: *Income Satisfaction* consists of a global single item: “Please tell me how satisfied or dissatisfied you are with the following aspect of your life: Household income.” Response options ranged from 1 (completely dissatisfied) to 5 (completely satisfied). *Job Satisfaction* is a single global item that has been shown to be an efficient and acceptable measure (Wanous et al., 1997): “Please tell me how satisfied or dissatisfied you are with the following aspect of your life: Job.” Response options ranged from 1 (completely dissatisfied) to 5 (completely satisfied). *Life Satisfaction* includes two items, one measuring magnitude and the other frequency: “All things considered, would you say that you are happy these days?” Response options ranged from 1 (very unhappy) to 5 (very happy), and “How often do you feel you are really enjoying life these days?” Response options ranged from 1 (never) to 4 (often). Cronbach’s alpha for these items was 0.69. While 0.7 and higher has been offered as a rule of thumb for acceptable reliability (Nunnally, 1978), it should be noted that there is no hard rule reliability coefficient acceptability, and Chronbach’s alpha for two-item scales may be a lower bound estimate (Eisinga et al., 2013). Finally, *Life Accomplishment* is a single global item

assessing one’s overall feeling of accomplishment in life: “How much do you feel you are accomplishing what you want out of your life?” Response options ranged from 1 (none) to 4 (a great deal).

### 3.2.4 Income Importance

After being presented with a list of twenty-five items, respondents were asked, “Of the following lifestyle aspects or life circumstances, please select five that are important to you.” One of the response options was income. Responses were coded as 1 (mentioned) or 0 (not mentioned), similar to previous research (Kasser & Ryan, 1993, 1996).

## 3.3 Analyses

To assess the association of relative intrinsic versus extrinsic goal orientation with subjective well-being, the same t-test comparison methodology utilized in previous studies was applied (Kasser & Ryan, 1993, 1996). In accord with work by Kasser and colleagues (e.g., Grouzet et al., 2005; Kasser & Ryan, 1993, 1996), the mean-centered standardized scores were created for each index, after which relative importance groups were created. Relative importance was defined as being above the standardized mean on the intrinsic scale score (e.g., Affiliation Importance) and below the standardized mean of the extrinsic (i.e., Materialism) score.

To assess the hypothesized curvilinear relationship between income and satisfaction (i.e., income and job) linear, quadratic, and cubic regressions were compared based on the amount of variance explained (Whetzel et al., 2010). The hypothesized moderating effect of income importance was assessed using step-down moderated regression, which is arguably a more precise test of moderation compared to step-up moderated regression (Aguinis, 2004; Lautenschlager & Mendoza, 1986). This approach involves an overall test of moderation (using the full model), followed by successive model comparisons. The full regression model includes income, the dichotomous income importance variable, and the interaction term. The first step compares the variable of income with the full model, wherein a significant variance indicates an interaction effect. If the interaction is present then assessments of slope and intercept differences are conducted. Slope differences are assessed, which involves comparisons of the income variable plus the dichotomous income importance variable against the full model. If there was evidence of slope differences, then the intercept differences are tested by comparing the income variable plus the interaction term against the full model. If there was no evidence for difference in slopes, then the intercept difference column is computed by comparing income alone with the income variable plus the dichotomous income importance variable (Lautenschlager & Mendoza, 1986).

A Multilevel Item Response Theory (MIRT) model was used to assess the ordering of intrinsic needs to model individual latent need strength while taking into account country level variance. While most researchers may acknowledge that individual level data is nested within various groups or clusters (e.g., individuals within teams, individuals within organizations, citizens within countries) many do not account for these dependencies. Recent developments in multilevel statistical modeling (see Aquinis et al., 2013) allow researchers to account for dependence among observations. Unaccounted for covariation between higher order variables and lower order variables leads to errors in prediction of outcomes. Additionally, individual level variables may vary dependent by clusters whether they’re formally or informally defined. For instance, nation states formally cluster data,

however cultural groupings that aren't defined by national borders have been shown to be useful in understanding data structures (e.g., Monnot, 2018). Thus, it's important for researchers to be cognizant of potential dependencies. There are many excellent resources available to researchers to implement more accurate multilevel statistical approach (e.g., Bliese & Hanges, 2004; Snijders & Bosker, 2012). Therefore in the current study we utilize a multilevel approach within an IRT framework, which is most well-suited to categorial response options.

This MIRT model was constructed to both control for country level effects on the individual level need strength, and, to assess the cross-level effect of HDI on individual level intrinsic need strength. The parameters most central to the current study include the category response curves (CRC), discrimination ( $\alpha$ ), threshold ( $\beta$ ), theta ( $\theta$ ), and standard error of measurement (SEM). The CRC displays the probability of responding to a particular response option or category given a conditional value of the underlying trait,  $\theta$ . The  $\beta$  estimates indicate the level of  $\theta$  at which there is a 50% probability of endorsing a particular intrinsic need, which will produce an ordering of needs based on  $\theta$  level. The resulting model is a 1-parameter logistic (1PL), or Rasch, MIRT model (Baker & Kim, 2004; Embretson & Reise, 2000). Using Mplus (Muthén & Muthén, 2012). Each CRC was calculated as:

$$\text{logit } [P(y_{ijk} = 1 | \theta_{jk}, \gamma_k)] = \beta_{0i}\theta + \beta_1\theta_{jk} + \beta_2\gamma_k$$

wherein the CRC is defined as the probability of an individual (j) within a country (k) reporting the importance of an intrinsic need (i), which is dependent on both the overall individual intrinsic need strength ( $\theta_{jk}$ ) and country level intrinsic need strength ( $\gamma_k$ ).

Lastly, HDI is modeled as a country level covariate with a direct effect on latent intrinsic need strength. Both the direct effect of HDI on latent need strength, and, the conditional probability of need strength endorsement across the range of HDI are computed to test the hypothesized relationship. The direct effect is represented by the item discrimination parameter,  $\alpha$ , which is analogous to the slope of a curve in classical measurement theory. Conditional probability analysis allows for estimates of individual need strength  $\beta$  across the full range of the covariate HDI (Muthén & Muthén, 2012).

## 4 Results

Descriptive statistics and correlations between study variables are presented in Table 1.

Relative intrinsic need strength group comparisons are presented in Table 2. Results show that, aside from Central Asia, every relationship tested was significant and in the hypothesized direction, which provides support for Hypothesis 1. Those reporting the importance of health, safety and security, affiliation, community feeling, and self-acceptance and growth relative to materialism report greater well-being. Those who reported greater relative importance of materialism goal orientation to each of the separate intrinsic goal orientations displayed lower levels of well-being. Therefore, intrinsically oriented individuals reported higher levels of job satisfaction, income satisfaction, life satisfaction, and life accomplishment.

To test Hypothesis 2 job satisfaction was regressed on income. Linear, quadratic, and cubic regressions show positive relationships. Linear relationships ranged from  $R=0.08$  ( $R^2=0.01$ ) to  $R=0.40$  ( $R^2=0.16$ ) with an mean of  $R=0.20$  ( $R^2=0.05$ ), whereas quadratic relationships ranged from  $R=0.09$  ( $R^2=0.01$ ) to  $R=0.41$  ( $R^2=0.17$ ) with an mean of

**Table 1** Descriptive statistics and correlations of study variables

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	1.51	0.5														
2. Age	37.88	11.99	-.02**													
3. Education	3.35	1.51	-.10**	-.14**												
4. Materialism	0.37	0.53	-.02**	-.08**	-.03**											
5. Safe and Sec	1.14	0.82	.04***	.13***	-.07**	-.21**										
6. Health	0.79	0.41	.03***	.07***	.04***	-.08***	-.04**									
7. Affiliation	0.69	0.7	.06***	.05***	.03***	-.24**	-.28**	-.08**								
8. Community	0.12	0.34	-.04***	.04***	.03***	-.09**	-.14**	-.08**	-.01							
9. Accept & Grow	0.17	0.41	-.05***	-.05***	.09***	-.07**	-.23**	-.14**	0.01	.02**						
10. Income Imp	0.30	0.46	-.04***	-.07***	.00	.87**	-.18**	-.05***	-.22**	-.09**	-.07**					
11. Income Sat	3.38	1.07	.00	-.07***	-.07***	-.10***	.01**	-.01*	.05**	-.01	-.02**	-.13**				
12. Job Sat	3.51	1.08	-.04***	-.01	.11**	-.08**	.02**	.00	.04**	.01**	-.02**	-.09**	.48**			
13. Life Sat	7.83	1.39	.03***	-.08***	.19***	-.07***	-.01	.01	.05**	.03**	-.01	-.08**	.38**	.33**		
14. Life Acc	2.75	0.72	0.01	0.02	.14***	-.07***	0.01	.00	.02**	.02**	-.02*	-.08**	.31**	.28**	.46**	
15. HDI	0.58	0.1	.02***	.07***	.15***	-.05***	.10**	.05***	.06***	.05***	-.02**	-.02**	.04**	.10**	.26**	.15**

Gender coded as Men (1) and Women (2), Materialism = Materialism importance, Safe and Sec. = Safety and security, Health = Health importance, Affiliation = Affiliation importance, Community = Community importance, Accept & grow = Self-acceptance and growth importance, Income Imp. = Income importance, Income Sat. = Income satisfaction, Job Sat. = Job satisfaction, Life Sat. = Life satisfaction, Life Acc. = Life accomplishment, HDI = Human development index

\* $p < .05$   
\*\* $p < .01$

**Table 2** Comparisons of intrinsic and extrinsic goal orientation on employee subjective well-being by Asian Region

Region	Income satisfaction						Job satisfaction						Life satisfaction						Life accomplishment					
	M			SD			M			SD			M			SD			M			SD		
	M	SD	t	M	SD	t	M	SD	t	M	SD	t	M	SD	t	M	SD	t	M	SD	t	M	SD	t
Asia	SSI	3.44	1.07	-14.41**	3.57	1.06	-12.13**	7.84	1.41	-4.83**	2.77	0.74	-6.39**											
	MI	3.24	1.09		3.39	1.06		7.69	1.41		2.66	0.71												
Central	SSI	3.01	1.29	-1.58	3.32	1.23	-1.12																	
	MI	2.93	1.23		3.26	1.31																		
Eastern	SSI	3.19	0.98	-6.10**	3.19	0.98	-4.11**	7.47	1.41	-5.55**	2.60	0.71	-6.60**											
	MI	3.08	0.98		3.08	0.98		7.19	1.40		2.44	0.67												
South Eastern	SSI	3.55	1.02	-10.34**	3.68	1.02	-6.54**	8.07	1.36	-1.41	2.87	0.73	-2.77**											
	MI	3.34	1.05		3.54	1.05		8.02	1.32		2.81	0.69												
Southern	SSI	3.85	1.01	-5.94**	3.87	1.05	-9.47**																	
	MI	3.67	1.09		3.53	1.21																		
Asia	HI	3.46	1.02	-9.73**	3.57	1.05	-9.85**	7.89	1.38	-5.59**	2.78	0.712	-4.69**											
	MI	3.29	1.02		3.39	1.14		7.66	1.38		2.68	0.723												
Central	HI	3.15	1.23	-3.99**	3.37	1.24	-2.95**																	
	MI	2.89	1.27		3.16	1.28																		
Eastern	HI	3.12	0.91	-4.56**	3.27	0.96	-4.12**	7.62	1.40	-6.25**	2.65	0.693	-5.91**											
	MI	2.97	0.93		3.12	1.01		7.19	1.43		2.45	0.71												
South Eastern	HI	3.58	0.98	-9.85**	3.71	1.01	-7.96**	8.10	1.33	-3.55**	2.89	0.71	-2.69**											
	MI	3.33	1.09		3.49	1.10		7.93	1.27		2.82	0.70												
Southern	HI	3.84	0.99	-7.10**	3.86	1.01	-8.85**																	
	MI	3.60	1.16		3.51	1.19																		
Asia	AI	3.49	1.01	-21.86**	3.59	1.03	-17.43**	7.92	1.36	-7.97**	2.79	0.712	-6.64**											
	MI	3.20	1.15		3.35	1.15		7.67	1.38		2.68	0.716												
Central	AI	3.19	1.24	-9.28**	3.43	1.24	-5.12**																	
	MI	2.73	1.34		3.17	1.31																		

**Table 2** (continued)

Region	Income satisfaction				Job satisfaction				Life satisfaction				Life accomplishment			
	M	SD	t	M	SD	t	M	SD	t	M	SD	t	M	SD	t	M
Eastern	AI	3.15	0.90	-10.99**	3.29	0.93	-9.99**	7.63	1.38	-10.23**	2.66	0.69	-9.37**			
	MI	2.88	0.96		3.03	1.02		7.07	1.43		2.41	0.70				
South Eastern	AI	3.61	0.97	-16.77**	3.74	1.00	-12.30**	8.14	1.31	-5.04**	2.89	0.72	-3.76**			
	MI	3.29	1.07		3.50	1.06		7.95	1.27		2.81	0.69				
Southern	AI	3.87	0.98	-7.76**	3.84	1.06	-10.20**									
	MI	3.64	1.11		3.49	1.24										
Asia	CFI	3.41	1.00	-9.78**	3.59	1.05	-10.47**	7.94	1.38	-7.30**	2.82	0.78	-7.73**			
	MI	3.22	1.12		3.38	1.13		7.67	1.39		2.67	0.704				
Central	CFI	3.20	1.19	-5.62**	3.48	1.31	-3.56**									
	MI	2.78	1.31		3.20	1.30										
Eastern	CFI	3.16	0.90	-8.54**	3.36	0.95	-9.09**	7.63	1.41	-7.80**	2.70	0.73	-9.19**			
	MI	2.90	0.92		3.07	0.97		7.17	1.38		2.43	0.67				
South Eastern	CFI	3.48	0.99	-5.59**	3.69	1.03	-5.35**	8.17	1.32	-4.29**	2.91	0.70	-3.58**			
	MI	3.33	1.06		3.54	1.05		7.97	1.31		2.82	0.69				
Southern	CFI	3.77	0.97	-2.07*	3.81	1.07	-4.47**									
	MI	3.68	1.10		3.55	1.21										
Asia	SGI	3.40	1.02	-9.86**	3.52	1.04	-7.08**	7.91	1.39	-5.14**	2.78	0.71	-4.72**			
	MI	3.23	1.12		3.39	1.13		7.71	1.40		2.69	0.71				
Central	SGI	3.12	1.21	-3.91**	3.44	1.29	-2.76**									
	MI	2.81	1.32		3.21	1.29										
Eastern	SGI	3.18	0.92	-11.53**	3.32	0.99	-9.68**	7.73	1.42	-10.30**	2.70	0.67	-9.40**			
	MI	2.87	0.94		3.05	0.94		7.15	1.40		2.44	0.68				
South Eastern	SGI	3.53	1.03	-7.54**	3.71	1.05	-5.87**	8.11	1.32	-2.28*	2.87	0.74	-2.29*			
	MI	3.32	1.05		3.55	1.04		7.99	1.31		2.81	0.69				

**Table 2** (continued)

Region	Income satisfaction			Job satisfaction			Life satisfaction			Life accomplishment		
	M	SD	t	M	SD	t	M	SD	t	M	SD	t
Southern	SGI	3.74	1.06	-4.84**	3.74	1.06	-3.66**					
	MI	3.55	1.21		3.55	1.21						

SSI = Safety and security importance, MI = Materialism importance, HI = Health importance, AI = Affiliation importance, CFI = Community feeling importance, SGI = Self-acceptance and growth. Results display a comparison between each individual goal (i.e., SSI, HI, AI, CFI, and SGI) and extrinsic goal (i.e., MI). Therefore respondents whose safety and security scores were higher than materialism scores are the SSI group; participants for whom the reverse was true are the MI group. This pattern is followed throughout the table for each intrinsic orientation

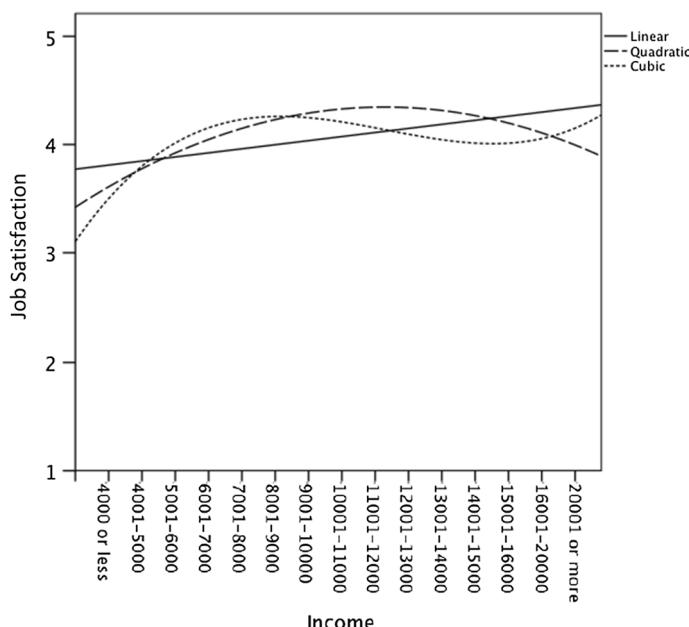
\* $p < .05$

\*\* $p < .01$

$R=0.22$  ( $R^2=0.06$ ), and cubic relationships ranged from  $R=0.09$  ( $R^2=0.01$ ) to  $R=0.45$  ( $R^2=0.20$ ) with a mean of  $R=0.23$  ( $R^2=0.06$ ). The average increase in quadratic regression coefficient from linear coefficient was  $R=0.02$  ( $R^2=0.01$ ), with a maximum increase in  $R=0.07$  ( $R^2=0.03$ ) (India; Fig. 1).

The average increase in cubic regression coefficient from quadratic coefficient was  $R=0.01$  ( $R^2=0.00$ ), with a maximum increase in  $R=0.04$  ( $R^2=0.03$ ) (Sri Lanka). Of the relationships assessed, 78% of the quadratic relationships explained additional variance in job satisfaction, whereas only 33% of the cubic relationships explained additional variance in job satisfaction beyond quadratic. Likewise, on average, quadratic provided an improvement in regression magnitude ( $\Delta R=0.02$ ), albeit small according to conventional standards (e.g., Cohen, 1988; Whetzel et al., 2010). The trend in variance explained and slope shapes (Fig. 1) provide evidence for the hypothesized relationship, wherein income has a diminishing marginal utility on job satisfaction (Table 3).

Results of moderated regression show that, in general, individuals who reported income as important are less satisfied with their income (Table 4). Additionally, when slope differences were present, it was such that income importance attenuated the strength of the positive relationship. Separate columns in Table 4 show overall predictive interaction, intercept interaction, and slope interaction estimates. Moderation is present for 13 of 18 relationships assessed. Of those relationships, 12 displayed intercept differences and 5 displayed slope differences. In those relationships displaying intercept differences, income satisfaction was lower across the range of income categories for individuals reporting income as



**Fig. 1** Shape of linear, quadratic, and cubic relationship between Indian income (in rupees) and job satisfaction. Note Each nonlinear regression accounts for additional variance in Job Satisfaction. The shapes of slopes are representative of those relationships where curvilinear functions explained significantly more variance than the linear function (see Table 3). The quadratic regression equation in this figure ( $R=.20$ ,  $p<.05$ ) explains more variance in Job Satisfaction than linear regression ( $R=.13$ ,  $p<.05$ ) and the cubic regression equation ( $R=.22$ ,  $p<.05$ ) explains more variance in Job Satisfaction than the quadratic equation

**Table 3** Linear and non-linear regression results for the relationship between income and job satisfaction, and, income satisfaction

Region	Country	n	Linear		Quadratic		Cubic	
			R	R <sup>2</sup>	R	R <sup>2</sup>	R	R <sup>2</sup>
Central	Uzbekistan	716	0.14	0.02	0.14	0.02	0.14	0.02
			0.23	0.05	0.24	0.06	0.25	0.06
Eastern	Japan	2097	0.20	0.04	0.20	0.04	0.21	0.04
			0.33	0.11	0.34	0.11	0.34	0.11
	Korea	1780	0.22	0.05	0.26	0.07	0.27	0.07
			0.33	0.11	0.36	0.13	0.37	0.14
	China	3727	0.24	0.06	0.27	0.07	0.27	0.07
			0.30	0.09	0.32	0.10	0.32	0.10
	Hong Kong	937	0.17	0.03	0.17	0.03	0.17	0.03
			0.35	0.12	0.35	0.12	0.35	0.12
	Taiwan	984	0.19	0.03	0.22	0.05	0.22	0.05
			0.22	0.05	0.25	0.06	0.25	0.06
	South-Eastern	Malaysia	0.19	0.04	0.19	0.04	0.20	0.04
			0.15	0.02	0.16	0.03	0.17	0.03
	Thailand	1799	0.21	0.04	0.25	0.06	0.25	0.06
			0.31	0.09	0.32	0.10	0.33	0.11
	Vietnam	2602	0.12	0.02	0.14	0.02	0.14	0.02
			0.20	0.04	0.21	0.04	0.21	0.04
	Myanmar	2600	0.08	0.01	0.09	0.01	0.11	0.01
			0.19	0.03	0.19	0.03	0.19	0.03
	Cambodia	1824	0.08	0.01	0.09	0.01	0.09	0.01
			0.09	0.01	0.10	0.01	0.10	0.01
	Indonesia	1804	0.21	0.04	0.21	0.04	0.21	0.04
			0.27	0.07	0.27	0.07	0.27	0.07
	Philippines	1508	0.10	0.01	0.13	0.02	0.13	0.02
			0.12	0.02	0.14	0.02	0.14	0.02
	Singapore	1732	0.19	0.04	0.25	0.06	0.27	0.07
			0.26	0.07	0.28	0.08	0.28	0.08
	Laos	996	0.12	0.01	0.12	0.02	0.12	0.02
			0.17	0.03	0.17	0.03	0.19	0.03
	Brunei	708	0.08	0.01	0.11	0.01	0.12	0.01
			0.18	0.03	0.18	0.03	0.18	0.03
	Southern	India	0.13	0.02	0.20	0.04	0.22	0.05
			0.21	0.05	0.28	0.08	0.29	0.08
	Sri Lanka	783	0.38	0.15	0.41	0.17	0.45	0.20
			0.40	0.16	0.41	0.17	0.42	0.18

Regression coefficients in the first row represent the criterion of job satisfaction and the coefficients in the second row represent the criterion of income satisfaction

important. Relationships displaying significant direct effects and slope differences (Indonesia, China, Thailand, and Malaysia) are plotted in Fig. 2. Slopes are displayed using the regression (i.e., linear, quadratic, or cubic) that explained the most variance in satisfaction.

**Table 4** Step-down moderated regression results for relationship between income and income satisfaction by espoused income importance

Country	n	$r_{xy}$	(Imp. I Unimp.)	[Imp. I Unimp.]	Full model				Prediction bias	Slope bias	Intercept bias			
					b		$R^2$							
					Inc	Imp	Inc. X Imp	$R^2$						
<i>Eastern</i>														
Japan	2097	0.33	(.388** .316**)	[214 1,876]	.096	-.751	.033	.139**	.031**	.001	.030**			
Korea	1780	0.33	(.342** .312**)	[643 1,134]	.126	-.280	.005	.128**	.021**	.000	.021**			
China	3727	0.30	(.351** .285**)	[1,078 2,642]	.093	-.313	.022	.105**	.015**	.001*	.011**			
Hong Kong	937	0.35	(.317** .365**)	[274 1661]	.072	-.095	-.004	.125**	.006*	.000	.006**			
Taiwan	984	0.22	(.273** .196**)	[336 648]	.031	-.281	.017	.057**	.010**	.002	.008**			
<i>South-Eastern</i>														
Malaysia	2406	0.15	(.208** .137**)	[570 1,822]	.060	-.391	.045	.034**	.011**	.002*	.006**			
Thailand	1799	0.31	(.387** .257**)	[543 1,254]	.061	-.570	.042	.117**	.024**	.006**	.024**			
Vietnam	2602	0.20	(.224** .182**)	[940 1,659]	.061	-.167	.019	.044**	.005**	.001	.004**			
Myanmar	2600	0.19	(.137** .201**)	[522 2,076]	.085	-.040	-.029	.042**	.007**	.001	.006**			
Cambodia	1824	0.09	(.0121 .138**)	[715 1,109]	.054	.094	-.049	.015**	.007**	.003*	.000			
Indonesia	1804	0.27	(.344** .232**)	[372 1,420]	.104	-.593	.063	.094**	.023**	.003*	.014**			
Philippines	1508	0.12	(.100 .125**)	[276 1,232]	.037	.144	-.010	.015**	.000	.000				
Singapore	1732	0.26	(.272** .254**)	[432 1,292]	.086	-.529	.030	.099**	.032**	.001	.031**			
Laos	996	0.17	(.139 .183**)	[326 1,666]	.032	-.071	-.006	.034**	.004					
Brunei	708	0.18	(.216** .166**)	[185 523]	.082	-.174	.041	.055**	.003					

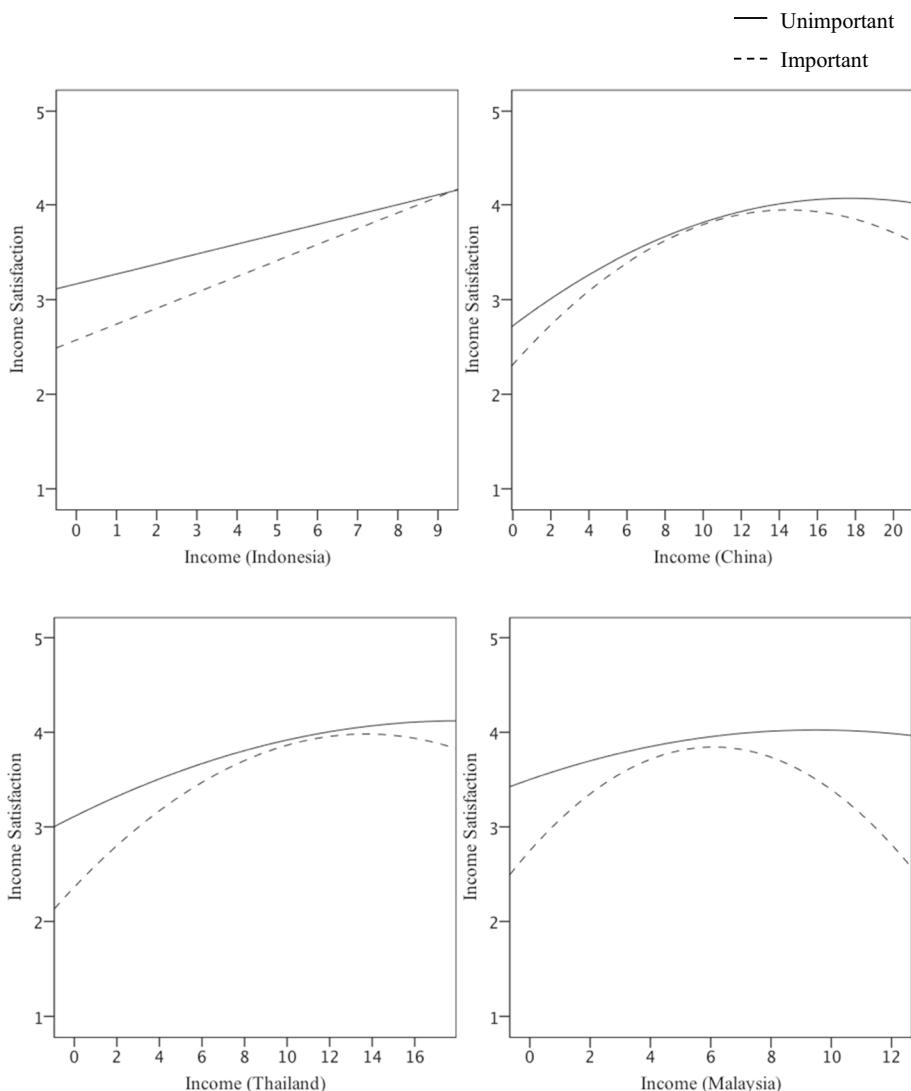
**Table 4** (continued)

Country	n	$r_{xy}$	(Imp.   Unimp.)	[Imp.   Unimp.]	Full model			Prediction bias	Slope bias	Intercept bias			
					$b$		$R^2$						
					Inc	Imp							
<i>Southern</i>													
India	819	0.21	(.234**   .206**)	[219   600]	.055	-.103	.012	.046**	.001				
Sri Lanka	783	0.40	(.448**   .379**)	[126   655]	.076	-.408	.018	.164**	.006				
<i>Central</i>													
Uzbekistan	716	0.23	(.188**   .231**)	[344   371]	.064	-.397	-.009	.095**	.044**	.044**			

Imp. = Earning a high income reported as important, Unimp. = Earning a high income not reported as important. Tests of slope and intercept bias were conducted only if evidence of predictive bias was indicated. The full model displays unstandardized regression coefficients, shown as b. Imp. was coded as 1 and Unimp. was coded as 0. Full model = income, importance, and the interaction term (Income X Importance).  $r^{xy}$  = correlation between income and income satisfaction only.  $R^2D$  = the change in the variance accounted for by the addition of the model. Prediction bias  $R^2D$  = comparison of income alone with the full model. Slope bias  $R^2D$  = comparison of income plus importance (i.e., Imp. or Unimp.) with the full model. If slope bias is significant, then the Intercept bias  $R^2D$  = comparison of income plus interaction term with the full model. If there is no evidence for slope bias, then the Intercept bias  $R^2D$  = comparison of income alone with income plus importance (i.e., Imp. or Unimp.) variable

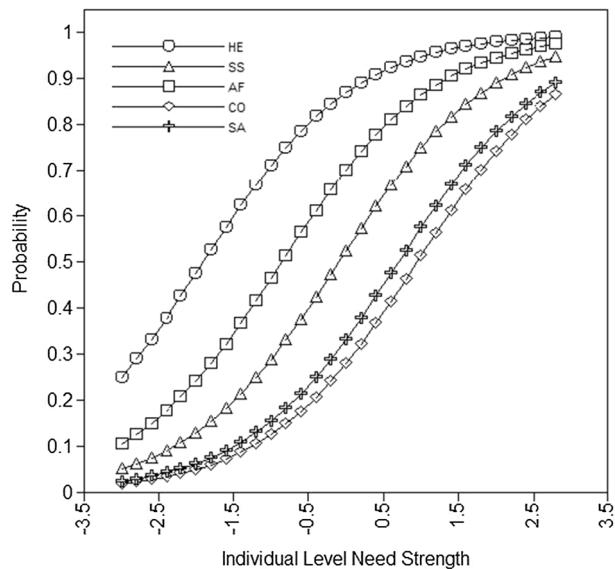
\* $p < .05$

\*\* $p < .01$



**Fig. 2** Shape of significant slope bias moderating effects of importance of income on the relationship between income and satisfaction. Note The plots above represent only those moderated regressions wherein significant slope bias was present. Significant intercept bias plots are not shown. Curvilinear relationships are shown in cases were a quadratic equation added incremental variance (i.e., China, Thailand, and Malaysia). Indonesia ( $n=1804$ ) income response categories ranged from less than 6 million Rp to more than 36 million Rp in 1.2 million increments, allowing for a total of 9 possible income range responses. China ( $n=3727$ ) income response categories ranged from less than ¥20,000 to more than ¥200,001 in ¥10,000 increments, allowing for a total of 20 possible income range responses. Thailand ( $n=1,799$ ) income response categories ranged from less than B\$5000 to more than B\$60,000 in gradually increasing (starting at B\$999 and ending with B\$4999) increments, allowing for a total of 17 possible income range responses. Malaysia ( $n=2406$ ) income response categories ranged from less than RM5000 to more than RM500,000 in gradually increasing (starting at RM5000 and ending with RM200,000) increments, allowing for a total of 12 possible income range responses

**Fig. 3** Category response curves representing the ordering of individual intrinsic need strength. Note Variables represent relative intrinsic need strength, wherein materialism is controlled for in each individual intrinsic need. HE Health importance, SS Safety and security importance, AF Affiliation importance, CO Community feeling importance, SA Self-acceptance and growth importance. The individual-level Category Response Curves (CRC) displayed above are the result of a Multilevel Item Response Theory (MIRT) model that controls for country level effects. The axis displays 3 Standard Deviations across individual level need strength (i.e.,  $\theta$ )

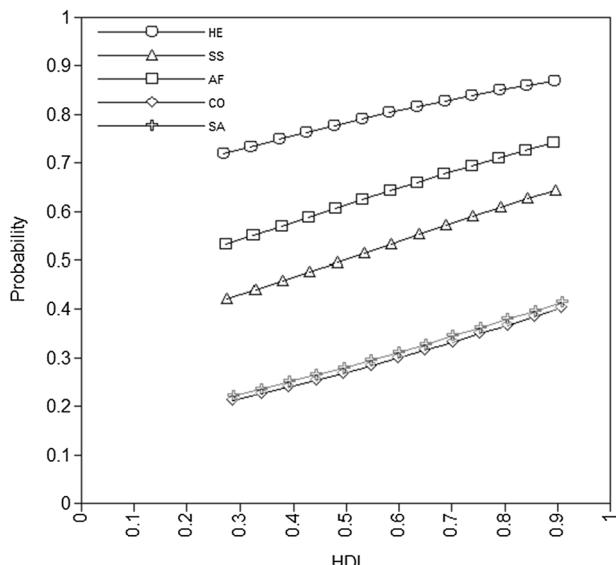


Results show that individuals who reported income as important are less satisfied with income, and the diminishing marginal utility effect is greater for individuals who reported income as important (Fig. 2).

To assess the final hypotheses regarding the interaction between individual and country-level variation in well-being, a MIRT model was constructed. As part of the multilevel model-building process it is prudent to determine nonindependence by way of cluster-level intraclass correlation coefficients (ICC) (Aguinis et al., 2013). Sizable ICCs have conventionally been used as indicators of potential bias caused by cluster level variation. While multilevel studies typically report ICC values between 0.15 and 0.30 (Mathieu et al., 2012) or 0.05 and 0.20 (Peugh, 2010), depending on the field, there isn't a convention for significance. Empirical evidence suggests that it is more important to consider the design effect. Design effect can be approximated by  $1 + (\text{average cluster size} - 1) * \text{ICC}$ , wherein a value of roughly 2 is considered significant (Muthén & Satorra, 1995). With an average cluster size of 1589 and an ICC of 0.15 for intrinsic need strength at the country level, the resulting design effect warrants a multilevel model.

To investigate the ordering of needs (Hypothesis 4), each need strength  $\beta$  and resulting CRC was investigated. Results provide general support for lower order needs (i.e., health, safety and security) being endorsed as important when intrinsic need strength is low, and higher order needs (i.e., community feeling, self-acceptance and growth) being endorsed at higher levels of intrinsic need strength (Fig. 3). Affiliation was considered important at low levels of intrinsic need strength. While this is contradictory to original hierarchical ordering (Maslow, 1943, 1954), it was expected given that the current sample is drawn from societies traditionally reporting high levels of collectivism. Final need ordering at the individual level included health ( $\beta = -1.9$ , SEM = 0.02), affiliation ( $\beta = -0.09$ , SEM = 0.02), safety and security ( $\beta = -0.01$ , SEM = 0.01), self-acceptance and growth ( $\beta = 0.70$ , SEM = 0.02), and community feeling ( $\beta = 0.95$ , SEM = 0.02), in succession. Need ordering displayed the same pattern at the country level, including health ( $\beta = -1.53$ , SEM = 0.64), affiliation ( $\beta = -0.48$ , SEM = 0.63), safety and security ( $\beta = 0.06$ , SEM = 0.64), self-acceptance

**Fig. 4** Conditional effect of human development index value on intrinsic need strength. Note The lines above display the conditional probability of intrinsic need endorsement as a function of Human Development Index (HDI) value. Variables represent relative intrinsic need strength, wherein materialism is controlled for in each individual intrinsic need. HE Health importance, SS Safety and security importance, AF Affiliation importance, CO Community feeling importance, SA Self-acceptance and growth importance. Each need strength line symbol represents 1/5th Standard Deviation (SD), with the center symbol representing 0 SD



and growth ( $\beta = 1.16$ , SEM = 0.65), and community feeling ( $\beta = 1.27$ , SEM = 0.65). These results provide support for hypothesis 4. Next, conditional probabilities were estimated across the range of the covariate. Figure 4 shows a positive relationship between HDI and  $\beta$  each individual intrinsic need. Specifically, the probability of intrinsic need endorsement increases at higher levels of HDI. These results support Hypothesis 5.

## 5 Discussion

Findings of the current study provide strong support for the basic tenets of GCT that intrinsic need goal orientation is associated with greater levels of individual well-being as compared to extrinsic goal orientation. These results extend empirical findings of student samples and experimental settings (Kasser & Ryan, 1993, 1996; Sheldon & Kasser, 1995; Vansteenkiste et al., 2004) to the workplace. Additionally, the current study extends previous cross-cultural studies (Monnot, 2017; Ryan et al., 1999; Schmuck et al., 2000; Vansteenkiste et al., 2007) to one of, if not the, most comprehensive survey of Asian societies.

Results confirm the small positive relationship between individual income and job satisfaction (Diener & Biswas-Diener, 2002; Diener & Oishi, 2000; Diener et al., 1993, 1999; Suh et al., 1998) and extend previous findings to demonstrate a curvilinear relationship. Specifically, the psychological effect of diminishing marginal utility is confirmed and then further explained by GCT. Support for this curvilinear relationship is followed by support for a moderating effect of extrinsic orientation. First, the curvilinear relationship between income importance and income satisfaction is exacerbated by perceived importance of wealth. This effect is demonstrated by calculation of intercept and slope bias (Table 4). Individuals who indicate income as being an important aspect of their life display lower levels of satisfaction (i.e., intercept bias), and in those cases where slope bias is present, the convex relationship is generally more pronounced (Fig. 2). The positive impact of intrinsic goal orientation, on the other hand, is displayed in the mean level well-being

comparisons between groups. When categorizing individuals as intrinsically versus extrinsically focused, this impact appears that across virtually every region of Asia: Individuals who rank intrinsic needs as more important than materialism are more satisfied with their income, life, job, and general life accomplishment (Table 2).

GCT contends that not all goals are created equal—namely that intrinsic goals are more advantageous than those that are extrinsic. The current results extend this theory to suggest that intrinsic goals themselves are not ranked with equal importance. The current study extends previous support for Maslow's (1943) hierarchy of needs regarding the order of intrinsic need motivation (Tay & Diener, 2011). While previous work displayed general support for the ordering of need satiation (Tay & Diener, 2011), the current study examined relative need strength. The need hierarchy is a motivational model, and therefore it is important to understand the ordering of the strength, not just satiation, of needs. Therefore the current findings are closely attuned to motivation rather than need satisfaction, because need strength motivates behavior. Additionally, the current study revises a previously developed Chinese hierarchy of needs (Nevis, 1983a, 1983b) to generalize to all of Asia. This revised theoretical model is generally supported by the current data, placing affiliative motives close to basic physiological needs, wherein affiliation is sought after basic survival. Community-based prosocial motives closely align with self-acceptance and growth, suggesting that prosocial behavior may be a way for one to fully express and develop oneself in more collectivist societies.

## 5.1 Implications

Recent market reforms, trade policy, and FDI have enabled Asian economies to experience some of the most abundant and continuous economic growth in modern times (Brandt & Rawski, 2008; Cumings, 2005; Di Lodovico et al., 2001; Hane, 1996). It is important to leverage these economic gains to enable human development and well-being. There are important implications from the current set of findings for individuals, organizations, and social policy. First, there is a common thread to each series of results that suggests individuals experience greater well-being when they focus on the intrinsically satisfying good life and not the materialistic satisfying “goods life” (Kasser, 2004). Aspiring toward affiliation with friends and coworkers, prosocial community-oriented behavior, and the expression of one's own personality and talents are associated with greater levels of satisfaction at work and in life in general. The current manuscript does not contend that it is necessary for employees to discard material aspirations, but rather to be cognizant of and balance these goal aspirations with those that are more central to the human experience (Diener et al., 2010).

The current findings support the general tenets of GCT and demonstrate the applicability of this theory to a large Asian sample—namely one of the most comprehensive multistage stratified random sample of countries from the four regions of Asia (Inoguchi, 2003–2007). There are also several contributions to GCT beyond its cross-cultural applicability. First, while GCT purports that intrinsic needs are more beneficial than extrinsic incentives the current study specifies and tests specific types of intrinsic needs. Specifically, health, safety and security, affiliation, community feeling, and self-acceptance and growth were shown to be more beneficial to subjective well-being as compared to the specific extrinsic incentive of income and material possessions. Second, while the aforementioned extrinsic incentives are shown to be less beneficial to subjective well-being the results also suggest that espoused importance of extrinsic incentives can exacerbate this effect. Specifically, placing

a greater importance on income only serves to detract from income satisfaction. Third, while GCT distinguishes the importance of intrinsic needs relative to extrinsic incentives it does not specify differences between intrinsic needs themselves. The current study demonstrates a hierarchical ordering of intrinsic needs such that lower order needs (e.g., health, safety and security) are deemed important at low levels of overall intrinsic need strength whereas higher order needs (e.g., community feeling, self-acceptance and growth) are deemed important at high levels of overall intrinsic need strength. We interpret this in a motivational context such that individuals are motivated to satisfy lower order needs before moving on to higher order needs. Finally, the current study suggests intrinsic need strength may interact with country development as the results show intrinsic need strength being greater in countries with a higher HDI.

In recent years many scholars have been interested in how organizations and macro-level policy might intersect to enable greater individual well-being. There has been a push to conceptualize organizations as being part of an interconnected socioeconomic and political network wherein people, firms, communities, and society have a shared interest in human development (Frederick, 1998). Human Capabilities Theory (HCT) (Sen, 1989) is one example of a macro-level framework that has been advanced to connect organizational and societal interests. Most adults spend a majority of their waking hours pursuing some type of employment. Therefore work life is an important indicator of how employees perceive their lives in general. HCT conceptualizes national development as the expansion of human capability, rather than equating development with increases in GDP. Additionally, this theory is congruent with the tenets of GCT in that the greatest potential for human well-being rests upon universal motives to satisfy intrinsic needs. Human development is affected by a reciprocal relationship between business and government. Policy-making emphasis on advancing intrinsic goal-orientation and capabilities of the national workforce is integral to enhancing national development. Likewise business practices that recognize that supporting employees holistically (not simply financially) are positively related to national development (Vogt, 2005).

The relative benefit of intrinsic need goal orientation and satiation is of importance to business leaders as organizational systems are devised. There are many examples of business founders and leaders who've sought to advance intrinsic development of employees as an integral part of work and not simply in addition to work. Organizational leaders would do well to incorporate human development into their vision and mission. As one example, Masaru Ibuka, founder of Sony, stated the primary purpose of his new company is “To establish a place of work where engineers can feel the joy of technological innovation, be aware of their mission to society, and work to their heart’s content” (Csikszentmihalyi, 2003, p.70). This vision aligns with some of the variables in the current study—job satisfaction (“feel the joy of innovation”), community orientation (“be aware of their mission to society”), and self-acceptance and growth (“work to their heart’s content”). We argue that this statement conveys—in part—demonstrates an inherent understanding that workplaces can be places that nurture the intrinsic needs of employees.

Healthy workplaces, from the perspective of human development, would be defined by those that not only provide proper remuneration, but also encourage the satisfaction of both lower and higher order needs. Understanding the hierarchical ordering of intrinsic needs suggests that workplaces be designed from the bottom up so to speak, such that health and safety are seen as necessary constants so that employees can move toward fulfilling higher order needs of community, self-acceptance and growth. The specific work design and job characteristics that facilitate the intrinsic needs and goals of employees are beyond the scope of this paper. There are of course excellent reviews of job and work design as

they relate to employee well-being (see Parker & Wall, 1998) as well as design interventions related to employee well-being (see Daniels et al., 2017).

## 5.2 Limitations

There are several limitations in the current study. Large-scale interview projects such as the series of data collections in the current study offer much in the way of generalizability, however there are certain tradeoffs that are often made during such efforts. Measurement variance is limited by the fact that some interview questions were coded categorically (i.e., mentioned versus not mentioned), and, most well-being indices were assessed with a single item. There are, however, a growing number of studies (e.g., Nichols & Webster, 2013; Postmes et al., 2013; Robins et al., 2001; Wanous et al., 1997) demonstrating the psychometric soundness of single items to measure psychological constructs. Nonetheless inclusion of more continuous rating scales and measures in future studies may actually enhance precision and magnitude of relationships. Likewise, while we used SME ratings to proffer content validity for our variables of intrinsic versus extrinsic goal orientations, we found it imprudent to compute internal consistency estimates because respondents were asked to select 5 items from a list of 20, which amounts partially rank-ordering ipsative task. While this is quite effective for dichotomizing groups it doesn't bode well for classical test theory approaches to internal consistency estimation. Again, additional measurement variance will desirable in subsequent research.

Another potential limitation involves the way in which income was assessed in the current study. Assessing actual income continuously rather than in discrete ranges would allow for more continuity as well as log transformations, if necessary, that would enable corrections and more exact replication of previous findings (e.g., Tay & Diener, 2011). Finally, using archival datasets limits researchers to the variables available in those datasets. While we think our choose of needs and incentives was adequate, we also think that it would have been more ideal to have a broader range of theoretically defined intrinsic needs and extrinsic incentives. For instance including variables such as competence, autonomy, and others posited as basic psychological needs by SDT would have allowed a more robust test of hierarchical need strength and satiation.

## 5.3 Future research

The interplay between needs, goal importance, rewards, and individual outcomes is complex. It would be beneficial to understand the multifaceted boundary conditions of the relationship between compensation and well-being. The current study examined the curvilinear relationship as well as an interaction with need importance. Future research should examine the specific point at which the linear relationship between income and satisfaction becomes convex, so that any underlying psychological processes that account for this change in linearity might be determined. Likewise, the higher-order interaction effects between extrinsic incentives (i.e., income) and intrinsic (e.g., affiliation, growth) needs and need satisfaction on individual well-being should be explored. A more specific understanding of the additive and interactive effects of need satisfaction will enable the more effective creation of total rewards systems for employees (Porter & Lawler, 1968).

While it is beyond the scope of this paper there has been considerable work scrutinizing Maslow's hierarchy of needs since his original work was published (Maslow, 1943, 1954). Researchers have approached the needs hierarchy from a variety of perspectives,

for example, historical reviews (e.g., Lussier, 2019), research reviews (e.g., Wahba & Bridwell, 1976), measurement (including reliability and validation studies) (e.g., Lollar, 1974; Mitchell & Moudgil, 1976; Rauschenberger et al., 1980; Taormina & Gao, 2013), and calls to revise or extend upon the hierarchy (e.g., Kenrick et al., 2010). We think an interesting area of research is that which delineates specific lower and higher order needs, the order of satiation, and satiation of needs with important outcomes such as well-being, human performance, as well as outcomes across different levels of measurement (i.e., individual, organizational, and country). While the current study and previous research (Tay & Diener, 2011) offer broadly generalizable support for higher and lower order need satiation and subjective well-being there are still many avenues for subsequent research.

In the current review we posited that GCT offers a universally valid explanation of the impact of need satiation on well-being—an explanation that is similar across nations and regions. Our theoretical framework led us to hypothesize similarities. While the results do, for the most part, confirm our position there is still ample room for testing theoretical differences across nations and regions. Our results suggest some regional (Table 2) cross-national (Table 4) differences (i.e., a minority of relationships were not significant as hypothesized). We did not test significance of differences between regions and nations as these potential differences were not part of our hypotheses. While national and geographical regional differences are potentially important the research on these differences is often equivocal (e.g., Matsumoto et al., 1997; Takano & Sogon, 2008). We think a more promising path of research involves clustering data according to theory instead of physical border. Some of these approaches include clustering data according to linguistic attributes (Cattell, 1950), attitudes (Haire et al., 1966), work goals (Ronan & Kraut, 1977), espoused values (Hofstede, 1980a; House, 2004), and preferred leadership styles (House, 2004). Related to the current study, for example, empirical results utilizing the Global Leadership and Organizational Behavior Effectiveness (GLOBE) (House, 2004) framework show cluster-level differences regarding the impact of intrinsic need satiation versus extrinsic incentives on employee attitudes (Monnot, 2018). It will be important for scholars to continue identifying cluster differences to aid international management, leadership, and organization effectiveness.

## 6 Conclusion

Globalization and growth in the last several decades, particularly among Asian nations, has spurred economic advancement and prosperity at both micro and macro levels. Prior research suggests that a subsequent shift in values, or goal orientation, appears to have followed suit. Yet levels of individual subjective well-being have remained stagnant. The current study displays the differing effects of intrinsic versus extrinsic goal orientation on satisfaction at work and in life. This implies that increased materialistic aspirations may detract from the actual benefits of material wealth. It is particularly important to understand this effect in Asia given the region’s relative speed of economic growth and historical collectivist cultural (and thus intrinsic) value orientation. To enable more robust economic development the wealth of individuals, organizations, and nations must be revised to include a focus on both financial and intrinsically important metrics.

## References

- Aguinis, H. A. (2004). *Regression analysis for categorical moderators*. The Guilford Press.
- Aguinis, H. A., Gottfredson, R. K., & Culpepper, S. A. (2013). Best-practice recommendations for estimating cross-level interaction effects using multilevel modeling. *Journal of Management*, 39(6), 1490–1528.
- Austin, J. T., & Villanova, P. (1992). The criterion problem: 1917–1992. *Journal of Applied Psychology*, 77(6), 836–874.
- Brief, A. P., & Aldag, R. J. (1977). The intrinsic-extrinsic dichotomy: Toward conceptual clarity. *Academy of Management Review*, 2(3), 496–500.
- Baker, F. B., & Kim, S. (2004). *Item response theory: Parameter estimation techniques* (2nd ed.). Marcel Dekker Inc.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Basabe, N., Paez, D., Valencia, J., Gonzalez, J. L., Rimé, B., & Diener, E. (2002). Cultural dimensions, socioeconomic development, climate, and emotional hedonic level. *Cognition & Emotion*, 16(1), 103–125.
- Bliese, P. D., & Hanges, P. J. (2004). Being both too liberal and too conservative: The perils of treating grouped data as though they were independent. *Organizational Research Methods*, 7, 400–417.
- Brandt, L., & Rawski, T. G. (2008). *China's great economic transformation*. Cambridge University Press.
- Brockmann, H., Delhey, J., Welzel, C., & Yuan, H. (2009). The China puzzle: Falling happiness in a rising economy. *Journal of Happiness Studies*, 10(4), 387–405.
- Brogden, H. E., & Taylor, E. K. (1950). The theory and classification of criterion bias. *Educational and Psychological Measurement*, 10, 59–186.
- Buss, D. M. (2005). *The handbook of evolutionary psychology*. Wiley.
- Cattell, R. (1950). The principal culture patterns discoverable in the syntax dimensions of existing nations. *Journal of Social Psychology*, 32, 215–253.
- Chang, S., & Rhee, J. H. (2011). Rapid FDI expansion and firm performance. *Journal of International Business Studies*, 42(8), 979–994.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.
- Csikszentmihalyi, M. (1988). *Optimal experience*. Cambridge University Press.
- Csikszentmihalyi, M. (2003). *Good business: Leadership, flow and the making of meaning*. Viking.
- Cumings, B. (2005). *Korea's place in the sun: A modern history*. Norton.
- Daniels, K., Gedikli, C., Watson, D., Semkina, S., & Vaughn, O. (2017). Job design, employment practices and well-being: A systematic review of intervention studies. *Ergonomics*, 60(9), 1177–1196.
- deCharms, R. (1968). *Personal causation*. Academic Press.
- Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of goal pursuits: Human needs and self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268.
- Deci, E. L., Ryan, R. M., Gagne, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former Eastern Bloc country. *Personality and Social Psychology Bulletin*, 27, 930–942.
- Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? *Social Indicators Research*, 57, 119–169.
- Diener, E. D., & Diener, C. (1995). The wealth of nations revisited: Income and quality of life. *Social Indicators Research*, 36, 275–286.
- Diener, E., Ng, W., Harter, J., & Arora, R. (2010). Wealth and happiness across the world: Material prosperity predicts life evaluation, whereas psychological prosperity predicts positive feeling. *Journal of Personality and Social Psychology*, 99(1), 52–61.
- Diener, E., & Oishi, S. (2000). Money and happiness: Income and subjective well-being across nations. In E. Diener & E. M. Suh (Eds.), *Culture and Subjective Well-Being* (pp. 185–218). MIT Press.
- Diener, E., Sandvick, E., Seidlitz, L., & Diener, M. (1993). The relationship between income and subjective well-being: Relative or absolute? *Social Indicators Research*, 28, 195–223.
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125, 276–302.
- Diener, E., Tay, L., & Oishi, S. (2013). Rising income and the subjective well-being of nations. *Journal of Personality & Social Psychology*, 104(2), 267–276.
- Di Lodovico, A. M., Lewis, W. W., Palmade, V., & Sankhe, S. (2001). India-From emerging to surging. *Mckinsey Quarterly*, 4, 28–50.
- Dittmar, H., Bond, R., Hurst, M., & Kasser, T. (2014). The relationship between materialism and personal well-being: A meta-analysis. *Journal of Personality and Social Psychology*, 107(5), 879–924.

- Dittmar, H. (2007). The costs of consumer culture and the "cage within": The impact of the material "good life" and "body perfect" ideals on individuals' identity and well-being. *Psychological Inquiry*, 18, 23–31.
- Deruz, B. (2011). The social costs of extrinsic relative to intrinsic goal pursuits revisited: The moderating role of general causality orientation. *Personality and Individual Differences*, 50, 684–687.
- Durvasula, S., & Lysonski, S. (2010). Money, money, money—How do attitudes toward money impact vanity and materialism?—The case of young Chinese consumers. *Journal of Consumer Marketing*, 27(2), 169–179.
- Dyer, L., & Parker, D. F. (1975). Classifying outcomes in work motivation research: An examination of the intrinsic-extrinsic dichotomy. *Journal of Applied Psychology*, 60, 455–458.
- Easterlin, R. A. (1974). Does economic growth improve the human lot? Some empirical evidence. In P. A. David & M. W. Reder (Eds.), *Nations and households in economic growth*. Academic Press.
- Eisinga, R., te Grotenhuis, M., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health*, 58, 637–642.
- Embretson, S. E., & Reise, S. P. (2000). *Item response theory for psychologists*. L. Erlbaum Associates.
- Frederick, W. C. (1998). Creatures, corporations, communities, chaos, complexity. *Business and Society*, 37(4), 358–389.
- Ganster, D. C., Kiersch, C. E., Marsh, R. E., & Brown, A. (2011). Performance-based rewards and work stress. *Journal of Organizational Behavior Management*, 31, 221–235.
- Grouzet, F. M. E., Kasser, T., Ahuvia, A., Dols, J. M. F., Kim, Y., Lau, S., Ryan, R. M., Saunders, S., Schmuck, P., & Sheldon, K. M. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology*, 89(5), 800–816.
- Gu, F. G., & Hung, K. (2009). Materialism among adolescents in China: A historical generation perspective. *Journal of Asia Business Studies*, 3(2), 56–64.
- Haire, M., Ghiselli, E., & Porter, L. (1966). *Managerial thinking: An international study*. Wiley.
- Hane, M. (1996). *Eastern Phoenix: Japan Since 1945*. Westview Press.
- Herzberg, F., Mausner, B., Peterson, R. O., & Capwell, D. F. (1957). *The motivation to work*. Wiley.
- Hinkin, T. A. (1998). Brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, 1, 104–121.
- Hofstede, G. (1980a). *Culture's consequences: International differences in work-related behaviors*. Sage Publications.
- Hofstede, G. (1980b). Motivation, leadership, and organization: Do American theories apply abroad? *Organizational Dynamics*, 9(1), 42–63.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (Eds.). (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Sage Publications.
- IMF survey: Asia: growth remains strong, expected to ease only modestly (May, 2016). IMF Country Focus. Retrieved from <https://www.imf.org/en/News/Articles/2015/09/28/0453/socar050316b>
- Inoguchi, T. (2003–2007) *AsiaBarometer Survey Data*. AsiaBarometer Project (<http://www.asiabarometer.org/>). Chuo University, Japan. Data files downloaded on June 1st, 2014.
- Judge, T. A., Piccolo, R. F., Podsakoff, N. P., Shaw, J. C., & Rich, B. L. (2010). The relationship between pay and job satisfaction: A meta-analysis. *Journal of Vocational Behavior*, 77, 157–167.
- Judge, T. A., Thoresen, C. J., & Bono, J. E. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, 127(3), 376–407.
- Kahneman, D., & Deton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences*, 107(38), 16489–16493.
- Kasser, T. (2004). The good life or the goods life? Positive psychology and personal well-being in the culture of consumption. In P. A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 55–67). Wiley.
- Kasser, T., & Ahuvia, A. (2002). Materialistic values and well-being in business students. *European Journal of Social Psychology*, 32(1), 137–146.
- Kasser, T., Rosenblum, K. L., Sameroff, A. J., Deci, E. L., Niemiec, C. P., Ryan, R. M., Árnadóttir, O., Bond, R., Dittmar, H., Dungan, N., & Hawks, S. (2014). Changes in materialism, changes in psychological well-being: Evidence from three longitudinal studies and an intervention experiment. *Motivation and Emotion*, 38, 1–22.
- Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychology*, 65(2), 410–422.
- Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin*, 22(3), 280–287.

- Kenrick, D. T., Griskevicius, V., Neuberg, S. L., & Schaller, M. (2010). Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations. *Perspectives on Psychological Science*, 5(3), 292–314.
- Kim, Y., Kasser, T., & Lee, H. (2003). Self-concept, aspirations, and well-being in South Korea and the United States. *The Journal of Social Psychology*, 143(3), 277–290.
- Kööts-Ausmees, L., Realo, A., & Allik, J. (2013). The relationship between life satisfaction and emotional experience in 21 European Countries. *Journal of Cross-Cultural Psychology*, 44(2), 223–244.
- La Guardia, J. G. (2009). Developing who I am: A self-determination theory approach to the establishment of healthy identities. *Educational Psychologist*, 44, 78–89.
- Lautenschlager, G. J., & Mendoza, J. L. (1986). A step-down hierarchical multiple regression analysis for examining hypotheses about test bias in prediction. *Applied Psychological Measurement*, 10, 133–139.
- Locke, E. A., Feren, D. B., McCaleb, V. M., Shaw, K. N., & Denny, A. T. (1980). The relative effectiveness of four methods of motivating employee performance. In K. D. Duncan, M. M. Gruenberg, & D. Wallis (Eds.), *Changes in working life* (pp. 363–388). Wiley.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist*, 57(9), 705–717.
- Lollar, D. (1974). An operationalization and validation of the Maslow need hierarchy. *Educational and Psychological Measurement*, 34, 639–651.
- Lussier, K. (2019). Of Maslow, motives, and managers: The hierarchy of needs in American business, 1960–1985. *Journal of the History of Behavioral Sciences*, 55, 319–341.
- Martos, T., & Kopp, M. S. (2012). Life goals and well-being: Does financial status matter? Evidence from a representative Hungarian sample. *Social Indicators Research*, 105, 561–568.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50, 370–396.
- Maslow, A. H. (1954). The instinctoid nature of basic needs. *Journal of Personality*, 22(3), 326–347.
- Mathieu, J. E., Aguinis, H., Culpepper, S. A., & Chen, G. (2012). Understanding and estimating the power to detect interaction effects in multilevel modeling. *Journal of Applied Psychology*, 97, 951–966.
- Matsumoto, D., Weissman, M. D., Preston, K., Brown, B. R., & Kupperbusch, C. (1997). Context-specific measurement of individualism-collectivism on individual level: The individualism-collectivism interpersonal assessment inventory. *Journal of Cross-Cultural Psychology*, 28, 734–767.
- McHoskey, J. (1999). Machiavellianism, intrinsic versus extrinsic goals, and social interest: A self-determination theory analysis. *Motivation and Emotion*, 23(4), 267–283.
- Mitchell, V. F., & Moudgil, P. (1976). Measurement of Maslow's need hierarchy. *Organizational Behavior and Human Performance*, 16, 334–349.
- Monnot, M. J. (2017). Marginal utility and economic development: Intrinsic versus extrinsic aspirations and subjective well-being among Chinese employees. *Social Indicators Research*, 132, 155–185.
- Monnot, M. J. (2018). The effect of incentives on intrinsic motivation and employee attitudes: A multilevel study across nations and cultural clusters. *Thunderbird International Business Review*, 60, 678–689.
- Morrison, M., Tay, L., & Diener, E. (2011). Subjective well-being and national satisfaction: Findings from a worldwide survey. *Psychological Science*, 22(2), 166–171.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Muthén & Muthén.
- Muthén, B. O., & Satorra, A. (1995). Complex sample data in structural equation modeling. *Sociological Methodology*, 25, 267–316.
- Nevis, E. C. (1983a). Cultural assumptions and productivity: The United States and China. *Sloan Management Review*, 24(3), 17–29.
- Nevis, E. C. (1983b). Using an American perspective in understanding another culture: Toward a hierarchy of needs in the People's Republic of China. *The Journal of Applied Behavioral Science*, 19(3), 249–264.
- Nichols, A. L., & Webster, G. D. (2013). The single-item need to belong scale. *Personality and Individual Differences*, 55, 189–192.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). McGraw-Hill.
- Page, J. (1994). The East Asian miracle: Four lessons for development policy. In S. Fischer & J. J. Rotemberg (Eds.), *NBER macroeconomic annual* (Vol. 9, pp. 219–282). MIT Press.
- Parker, S. K., & Wall, T. D. (1998). *Job and work design: Organizing work to promote well-being and effectiveness*. Sage Publications.
- Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology*, 48, 85–112.
- Podoshen, J. S., Li, L., & Zhang, J. (2010). Materialism and conspicuous consumption in China: A cross-cultural examination. *International Journal of Consumer Studies*, 35(1), 17–25.
- Porter, L. W., & Lawler, E. E. I. I. (1968). *Managerial attitudes and performance*. Irwin-Dorsey.

- Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British Journal of Social Psychology*, 52, 597–617.
- Rauschenberger, J., Schmitt, N., & Hunter, J. E. (1980). A test of the need hierarchy concept by a markov model of change in need strength. *Administrative Science Quarterly*, 75, 654–670.
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin*, 27, 151–161.
- Ronen, S., & Kraut, A. (1977). Similarities among countries based on employee work values and attitudes. *Journal of World Business*, 12, 89–96.
- Ryan, R. M., Chirkov, V. I., Little, T. D., Sheldon, K. M., Timoshina, E., & Deci, E. L. (1999). The American dream in Russia: Extrinsic aspirations and well-being in two cultures. *Personality and Social Psychology Bulletin*, 25(12), 1509–1524.
- Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54–67.
- Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69, 719–727.
- Samrat, R., & Kumarjit, M. (2012). Empirical evidence on the relationship between foreign direct investment and economic growth: A cross-country exploration in Asia. *Seoul Journal of Economics*, 25(4), 413–439.
- Schmuck, P., Kasser, T., & Ryan, R. M. (2000). Intrinsic and extrinsic goals: Their structure and relationship to well-being in German and U.S. college students. *Social Indicators Research*, 50(2), 225–241.
- Schwartz, S. H. (2006). Cultural and individual value correlates of capitalism: A comparative analysis. *Psychological Inquiry*, 18, 52–57.
- Sen, A. (1989). Development as capability expansion. *Journal of Development Planning*, 19(1), 41–58.
- Sheldon, K. M., Gunz, A., Nichols, C. P., & Ferguson, Y. (2010). Extrinsic value orientation and affective forecasting: Overestimating the rewards, underestimating the costs. *Journal of Personality*, 78(1), 149–178.
- Sheldon, K. M., & Kasser, T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology*, 68(3), 531–543.
- Sheldon, K. M., & Krieger, L. S. (2014). Walking the talk: Value importance, value enactment, and well-being. *Motivation and Emotion*, 38(5), 609–619.
- Sheldon, K. M., Ryan, R. M., Deci, E. L., & Kasser, T. (2004). The independent effects of goal contents and motives on well-being: It's both what you pursue and why you pursue it. *Personality and Social Psychology Bulletin*, 30(4), 475–486.
- Snijders, T. A. B., & Bosker, R. J. (2012). Multilevel analysis: An introduction to basic and advanced multilevel modeling (2nd ed.). Sage. Treating grouped data as though they were independent. *Organizational Research Methods*, 7, 400–417.
- Speck, S. K. S., & Roy, A. (2008). The interrelationships between television viewing, values and perceived well-being: A global perspective. *Journal of International Business Studies*, 39, 1197–1219.
- Suh, E., Diener, E., Oishi, S., & Triandis, H. C. (1998). The shifting basis of life satisfaction judgments across cultures: Emotions versus norms. *Journal of Personality and Social Psychology*, 74, 482–493.
- Tang, T., Luna-Arcas, R., Pardo, I., & Tang, T. (2014). Materialism and the bright and dark sides of the financial dream in Spain: The positive role of money attitudes—The Matthew effect. *Applied Psychology*, 63(3), 480–508.
- Taormina, R. J., & Gao, J. H. (2013). Maslow and the motivation hierarchy: Measuring satisfaction of the needs. *American Journal of Psychology*, 126(2), 155–177.
- Tay, L., & Diener, E. (2011). Needs and subjective well-being around the world. *Journal of Personality and Social Psychology*, 101(2), 354–365.
- Takano, Y., & Sogon, S. (2008). Are Japanese more collectivistic than Americans? Examining conformity in in-groups and the reference group effect. *Journal of Cross-Cultural Psychology*, 39, 237–250.
- Unanue, W., Dittmar, H., Vignoles, V. L., & Vansteenkiste, M. (2014). Materialism and well-being in the UK and Chile: Basic need satisfaction and basic need frustration as underlying psychological processes. *European Journal of Personality*, 28, 569–585.
- United Nations Development, P. (1990). *Human Development Report 1990*.
- United Nations, Department of Economic and Social Affairs, Population Division. (2014). *World Urbanization Prospects: The 2014 Revision*.

- Vansteenkiste, M., Duriez, B., Simons, J., & Soenens, B. (2006). Materialistic values and well-being among business students: Future evidence of their detrimental effect. *Journal of Applied Social Psychology, 36*(12), 2892–2908.
- Vansteenkiste, M., Neyrinck, B., Niemiec, C. P., Soenens, B., De Witte, H., & Van den Broeck, A. (2007). On the relations among work value orientations, psychological need satisfaction and job outcomes: A self-determination theory approach. *Journal of Occupational and Organizational Psychology, 80*(25), 251–277.
- Vansteenkiste, M., Niemiec, C. P., & Soenens, B. (2010). The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions. In T. C. Urdan & S. A. Karabenick (Eds.), *Advances in motivation and achievement, v. 16A—The decade ahead: Theoretical perspectives on motivation and achievement* (pp. 105–165). Emerald Group Publishing Limited.
- Vansteenkiste, M., Ryan, R. M., & Deci, E. L. (2008). Self-determination theory and the explanatory role of psychological needs in human well-being. In L. Bruni, F. Comin, & M. Pugno (Eds.), *Capabilities and happiness* (pp. 187–223). Oxford University Press.
- Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L. (2004). Motivating learning, performance, and persistence: The synergistic effects of intrinsic goal contents and autonomy-supportive contexts. *Journal of Personality and Social Psychology, 87*(2), 246–260.
- Veenhoven, R. (1991). Is happiness relative? *Social Indicators Research, 24*(1), 1–34.
- Vogt, C. P. (2005). Maximizing human potential: Capabilities theory and the professional work environment. *Journal of Business Ethics, 58*(1–3), 111–123.
- Vroom, V. H. (1964). *Work and motivation*. Wiley.
- Wanous, J. P., Reichers, A. E., & Huday, M. J. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology, 82*(2), 247–252.
- Wahba, M. A., & Bridwell, L. G. (1976). Maslow reconsidered: A review of research on the need hierarchy theory. *Organizational Behavior and Human Performance, 15*, 212–240.
- Whetzel, D. L., McDaniel, M. A., Yost, A. P., & Kim, N. (2010). Linearity of personality-performance relationships: A large-scale examination. *International Journal of Selection and Assessment, 18*(3), 310–320.
- Wong, N., Rindfussch, A., & Burroughs, J. E. (2003). Do reverse-worded items confound measures in cross-cultural consumer research? The case of the material values scale. *Journal of Consumer Research, 30*, 72–91.
- Zagorski, K., Evans, M., Kelley, J., & Piotrowska, K. (2014). Does national income inequality affect individuals' quality of life in Europe? Inequality, happiness, finances, and health. *Social Indicators Research, 117*(3), 1089–1110.
- Zhan, L., & He, Y. (2011). Understanding luxury consumption in China: Consumer perceptions of best-known brands. *Journal of Business Research, 65*(10), 1452–1460.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.