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# Meaning versus measurement: why do 'economic' indicators of poverty still predominate?

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# Meaning versus measurement: why do 'economic' indicators of poverty still predominate?

*Andrew Sumner*



*It is virtually undisputed that poverty is multi-dimensional. However, 'economic' or monetary measures of poverty still maintain a higher status in key development indicators and policy. This article is concerned with the apparent contradiction between the consensus over the meaning of poverty and the choice of methods with which to measure poverty in practice. A brief history of the meaning and measurement of poverty is given, and it is argued that 'economic' determinism, while it has gradually retreated from centrality in the meaning of poverty, has continued to dominate the measurement of poverty. This is followed by a section that contrasts the relative merits of 'economic' and 'non-economic' measures of poverty. The question is posed: why do 'economic' measures of poverty still have a higher status than non-economic measures?*

KEY WORDS: Governance and Public Policy; Methods; Aid

## Introduction

It is virtually undisputed that poverty is multi-dimensional and beyond purely 'economic' dimensions, by which we mean measures of income, expenditure, or other monetary factors. Further, that the dimensions of poverty cover gender equality, education, health, shelter, water, sanitation, risk, vulnerability, participation, 'voice', and other social 'rights'. This virtually unbounded range of dimensions was noted in the Millennium Declaration, which was signed by all countries – although not all of them are included in the Millennium Development Goals (MDGs) (UN 2000). The work of a number of scholars, notably Mahbub Ul Haq and Amartya Sen, and of international agencies such as UNDP, has taken this expansion of the meaning of poverty from 'the periphery to the core' (Sagar and Najam 1999 : 743). In fact, in 2000 the World Bank's *World Development Report* (*WDR*) opened with a quote from Amartya Sen (World Bank 2000 : 15); and not only did the 'milestone' *2000/1 WDR* dedicate its first chapter to discussing and accepting poverty as multi-dimensional, but so did the OECD *Development Assistance Committee Poverty Guidelines* on development aid (OECD 2001). This point has been reaffirmed in *The Millennium Project Report to the United Nations*



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*Secretary General* (UNMP 2005 : 26-7) and *The Report of the Commission for Africa: Our Common Future* (CfA 2005 : 101).

So, the conventional wisdom, at least among international donor agencies, is that poverty is multi-dimensional. End of story? Not quite. Although multi-dimensionality may be largely accepted, 'economic' measurements, and in particular income-poverty measures, still predominate or at the very least are implicitly accorded the position of 'first among equals'. This is so not only generally in the development discourse (Kanbur and Squire 2001 : 187) but particularly in three major areas:

- in the main drivers of contemporary development policy – the MDGs;
- in the widely used (and hotly debated) UNDP 'Human Development' Indices – the Human Development Index (HDI) and Gender Development Index (GDI);
- and in the main contemporary development 'vehicle' – the Poverty Reduction Strategy Paper (PRSP) process.

How can this apparent contradiction between conceptual advances and development practice be explained? This article first takes a step back to note just how difficult it is to find a satisfactory measure of poverty. There follows a brief history of the evolution of the meaning and measurement of poverty. The relative merits of 'economic' and 'non-economic' measures of poverty are then contrasted. Finally, the question is posed: why do policy makers favour 'economic' measures of poverty?

## Imperfect indicators and 'tricky' questions

The process of constructing a satisfactory measure of poverty, and in particular one that does not send perverse signals to policy makers, is highly problematic. First, one can consider what characteristics are exhibited by a 'good' poverty indicator. There is little disagreement on the characteristics of such an indicator. Most commonly noted are the following criteria: that the measure should (i) be 'user friendly' i.e. relevant/useful to policy or decision makers; (ii) be relatively cheap and easy to collect and not easily manipulated; (iii) be based on an underlying universal conceptualisation of poverty: in other words, it should relate equally to all people, at least locally, if not globally (for example, the WHO estimates that human beings need an average daily minimum of 2100 calories); and (iv) be a simple, direct, measurable, unambiguous proxy, rather than an indirect or ambiguous proxy (DFID 2002; Maxwell 1999; World Bank 2002). This is fine in theory, but what commonly used poverty indicators could in fact satisfy all these criteria?

A second stage in the construction of a satisfactory measure of poverty is to interpret and agree on different meanings and dimensions of poverty. Who are the poor (Sen's identification problem)? How many 'poor' people are there (Sen's aggregation problem)? The answers to these questions, and to the question of the severity of poverty, are critically dependent on the choice and ranking of indicator(s). Approximately one billion people live on less than one dollar a day, but more than two billion lack access to 'adequate' sanitation (UN 2004). Which is more important? Should they be equally weighted or ranked? There is no consensus on which dimensions deserve greater emphasis or priority. If the number or percentage of poor people falls by one dimension / measure – for example, literacy – but increases by another dimension / measure – for example, life expectancy – has poverty risen or fallen overall? Further, not only can individuals be poor in some dimensions but not in others, but poverty is dynamic, and people move into and out of poverty over time – sometimes over relatively short periods of time.

A third stage is to consider the policy signals sent by different indicators. Kanbur (2004 : 5–8) has identified a series of 'tricky questions' that relate to such signals. These do not simply represent 'a philosophical curiosum', but have actually arisen over the last two decades. Kanbur's four 'tricky questions' are the following:

- If the total number of people in poverty (however measured) rises because of population growth, but the percentage of the poor in the total population falls, has poverty risen or fallen?
- If the number of poor or the percentage of poor people (however measured) falls because the poor die at a faster rate than the non-poor (through HIV/AIDS, for example), has poverty risen or fallen? This is a particular issue when we assess gross domestic product (GDP) per capita. Because the poor are more likely to work in the informal economy, their economic activity is less likely to be recorded in GDP data, so it is likely that the faster poor people die, the faster GDP per capita rises.
- If the number of poor or the percentage of poor people (however measured) falls overall, but poverty falls for some and rises for others, has poverty risen or fallen?
- If the number of poor or the percentage of poor people falls overall because of an increase in private 'bads', such as the consumption of cigarettes and/or alcohol, or public 'bads' (in contrast to public goods), has poverty risen or fallen?

## A brief history of the meaning of poverty

The history of debates on the meaning and measurement of poverty is somewhat contradictory. In relation to meaning, 'economic' measures have slowly retreated from centrality since the mid-to-late 1960s, when Dudley Seers (1969) published his article 'The Meaning of Development'. In contrast, the retreat of 'economic' measures is not mirrored in parallel measures of poverty as one would expect. 'Economic' measures have remained fairly central.

Up to the 1960s, poverty was economically determined, and standards of living were measured as income per capita (see Table 1). Seers (1969) expanded the meaning of development beyond GDP per capita and into 'basic needs'. Still largely 'economic', this re-definition argued that poverty was about the satisfaction of 'basic needs', which included not only income and employment but also the physical necessities for a basic standard of living such as food, shelter, and public goods (see also ILO 1976, 1977; Streeten 1984).

This coincided with the emergence in the 1960s and 1970s of 'levels of living' indicators, developed by the United Nations Research Institute for Social Development (UNRISD) in response to dissatisfaction with reliance on GDP per capita. There was a continuum from the 1960s into the 1970s and ultimately into the 1990s: the work of Morris (1979) and UNRISD (1970) set the foundations for Sen's and later UNDP's 'Human Development' indicators.

**Table 1:** The evolution of poverty meaning and measurement, 1950s–2000s

| Period | Concept of poverty | Measurement of poverty |
|---|---|---|
| 1960s | Economic | GDP per capita growth |
| 1970s | Basic needs (inc. economic) | GDP per capita growth + basic goods |
| 1980s | Economic | GDP per capita |
| 1990s | Human development (inc. economic) | UNDP Human Development Indices |
| 2000s | Multi-dimensional 'freedom' | Millennium Development Goals |

In the early 1980s, the work of Robert Chambers (1983) on non-monetary poverty (in particular isolation and disempowerment) shifted the debate further away from economic determinism. The 1980 *WDR* characterised poverty as beyond income and encapsulating nutrition, education, and health (World Bank 1980 : 32).

In the 1990s, debates were shaped by the work of Amartya Sen and UNDP's annual *Human Development Report*, launched in 1990. Sen (1982, 1985, 1988) and UNDP conceptualised poverty as 'economic' plus 'non-economic'; they argued that well-being was not, as previously defined, based on 'desire fulfilment' (utility or consumption measured by the proxy of income – GDP per capita), because this does not take account of the physical condition of the individual. Instead they defined well-being as 'the process of enlarging people's choices' (UNDP 1990 : 1). Sen shifted the focus from 'means' (such as having income to buy food) to 'ends' (such as being well nourished). He noted that there is a broad set of conditions (including being fed, healthy, clothed, and educated) that together constitute well-being. According to Sen, individuals have entitlements (command over commodities) that are created through endowment (assets owned) and exchange (trade and production by the individual). Many of these entitlements take place in the 'subsistence' or 'non-monetary/non-marketed' economy. Entitlements are exchanged for capabilities – a set of opportunities – to achieve the set of conditions of well-being. The UNDP indices are only a partial application of Sen's research on well-being. They do not incorporate a full range of the conditions for well-being (for example, the condition of being sheltered is not included); only certain capabilities are included; and although exchange entitlements are accounted for, endowments are not.[1] More importantly, although the HDI and GDI include health and education, income is given far greater weighting, thus implicitly suggesting greater importance (see UNDP 1990–2004 for the methodology). So, while 'economic' determination was retreating in the meaning of poverty, the HDI still weighted its 'economic' dimensions more heavily than its 'non-economic' dimensions. Moreover, in 1990 the World Bank launched what would become *the* global poverty indicator. The new dollar-a-day measure of poverty was primarily 'economic', based on income and/or expenditure.

Throughout the 1990s there were numerous UN poverty conferences, most notably the 1995 Copenhagen World Summit on Social Development, which was the origin of the commitments that would become the MDGs at the 2000 Millennium Assembly. As the decade closed, as if to sum up, the 2000/1 *WDR* played a major role in confirming the centrality of well-being in the discourse. Quoting Sen, the report accepted a multi-faceted model of well-being, as previously noted. However, even here, although social indicators were included in the statistical tables, the first few tables were still primarily composed of economic indicators, and poverty data were included only as Table 4. Education and health were addressed respectively in Tables 6 and 7; surprisingly, there were very few gender-equality data at all.

Again, on the one hand 'economic' determination was retreating in the meaning of poverty with the expansion of 'non-economic' measures, but on the other hand an 'economic measure' – the dollar-a-day – became the principal MDG. Although the MDGs, the main drivers of contemporary development, cover 'non-economic' indicators and thus recognise the multi-dimensionality of poverty, the dollar-a-day – an economic indicator – is the top goal, while education and health are the second and sixth MDGs respectively, implicitly suggesting some ranking of importance. Additionally, income measures have tended to dominate the main contemporary development 'vehicle', the PRSP process. Despite frequent references to 'non-economic' indicators, income poverty predominates in PRSPs (Booth and Lucas 2002 : 23), and other indicators are seen as 'less basic to the definition of poverty than lack of income' (Thin *et al.* 2001 : 8).

A further tension has emerged between universal measures of poverty and measurements that sought to capture the local experiences of poverty. Most famously, *Can Anyone Hear Us?*

(Narayan *et al.* 1999) identified two 'new' psychological aspects of poverty: risk and vulnerability on the one hand, and empowerment and participation on the other. The first relates to 'economic' well-being, and the second to 'non-economic' well-being. The debate was simultaneously moving in opposite directions. The first direction was upwards towards universality, based on an international agreement on MDGs. The second was a move downwards towards locally based definitions of poverty, reflected in the increased prominence of participatory poverty assessments.

In short, the paradigm shift initiated by Seers on the meaning of poverty and development was completed only 30 or so years later in the *2000/1 WDR* – a fact which somewhat contradicts the continuing dominance of 'economic' measures. Over the previous three or four decades, the debate had moved from regarding well-being as economically determined to entertaining broader conceptualisations of poverty; from considering the 'means' of well-being to analysing the 'ends'; from identifying 'needs' to identifying 'rights'; from relying on few or no indicators to relying on many; and from (at best) the status of an afterthought to that of a central focus of the development discourse. In many ways this reflected the broader shift of Development Studies away from its genesis in economics and towards multi-disciplinarity. As Development Studies has moved from being a purely economic pursuit to adopting multi-disciplinary approaches, so poverty has moved away from economic determinism to a multi-dimensional definition. So why has the measurement of poverty continued to accord primacy to 'economic' indicators?

## 'Economic' or 'non-economic' poverty measures?

This section is concerned with the relative merits of 'economic' and 'non-economic' measures of poverty. Three clusters of poverty / well-being indicators can be identified and categorised: (i) those that measure poverty primarily in terms of 'economic' well-being; (ii) those that measure poverty primarily in terms of 'non-economic' well-being; and (iii) composites. The indicators included are those most commonly used. They are drawn from the major annual publications on poverty: UNDP's *Human Development Report* and the World Bank's *World Development Report*. Many of these measures are used in the MDGs and thus are of particular interest.

'Economic' poverty indicators can be divided into three groupings: (i) those loosely based on income per capita; (ii) those using an income-poverty line; and (iii) those assessing income inequality (see Table 2). 'Non-economic' poverty measures can also be grouped into three clusters (Table 2): those based on (i) education, (ii) health and nutrition, and (iii) the environment. Here the merits of 'economic' versus 'non-economic' measures are discussed, rather than individual indicators.

While not adopted to the exclusion of 'non-economic' indicators, 'economic' measures do have some higher status with policy makers, as illustrated by the MDGs, the HDIs, and the PRSP process. Why might they still enjoy this 'preferred' status? There are technical reasons. As noted before, policy makers seek 'user-friendly' indicators: indicators that are relevant or useful to policy makers and decision makers and are relatively cheap and easy to collect. 'Economic' measures of well-being are popular with policy makers because they are useful when they need to make quick, rough-and-ready, short-run, aggregate inferences in order to make an assessment. Such measures are more responsive, changing much faster than 'non-economic' social data, which suffer a time lag. They are more likely to be recently available than 'non-economic' measures, and are also cheaper and less complex to collect than are 'non-economic' poverty data. In contrast, 'non-economic' measures of poverty are more useful when a medium- or longer-run assessment is required, because they more directly

**Table 2:** Most commonly used 'economic' and 'non-economic' measures of poverty

| **Economic poverty indicators** |
|---|
| Income per capita |
| • GDP per capita |
| • Real wages |
| • Unemployment rate* |
| Income-poverty lines |
| • Percentage of the population living on less than one dollar a day per capita* |
| • Percentage of the population living below the national poverty line |
| • Percentage of the population vulnerable to poverty through variance of income or assets |
| Income inequality |
| • Poverty gap and severity indices at a dollar a day per capita* |
| • Expenditure of bottom quintile as percentage of total expenditure* |
| • Gini co-efficient |
| *Non-economic poverty indicators* |
| Education |
| • Education enrolment rates* |
| • Survival to the final grade of primary or secondary school / completion of primary or secondary school* |
| • Literacy rates* |
| Health and nutrition |
| • Malnutrition rates* / food or calorie consumption per capita/body-mass index |
| • Mortality and morbidity rates* / life expectancy / not expected to survive to 40 years / infection rates* |
| • Health-service usage – skilled personnel at birth* / contraceptive-prevalence rate* / immunisation rates* |
| Environment |
| • Access to 'improved' water sources* |
| • Access to 'adequate' sanitation* |
| • Household infrastructure – permanent material used for walls of home; electricity supply |

*Note: *denotes indicator is a Millennium Development Goal*

address the 'ends' or outcomes of policy (such as being educated and healthy), rather than the inputs or 'means' (having greater income). Although they are slower and more expensive to collect (often requiring their own specially constructed surveys and/or combined methods), they have the additional benefit of being amenable to disaggregation, which makes them instructive for the distributional impacts of policy changes (World Bank 2001a, 2001b).

However, arguably more influential than technical factors is the perception among policy makers that 'economic' measures of poverty are more 'objective' or 'rigorous': hence income measures dominate the MDGs, the HDIs, and the PRSPs. This point is, to a certain

extent, an extension of White's (2002) observation on methods in development research, which is to note the perception that *economics = objective = more 'rigorous'*. This can be seen in the measurement of poverty. As noted previously, policy makers seek objective measures, i.e indicators that are the same to all people, at least locally if not globally, because their basis on an underlying universal conceptualisation of poverty enhances their legitimacy and facilitates universal comparisons both within and between countries. Policy makers also want simple, direct, measurable, unambiguous proxies, rather than proxies that are indirect or ambiguous.

'Economic' measures are based on phenomena that are tangible (expenditure or income, for example) rather than intangible (being 'educated' or being 'healthy'); more amenable to quantification (expenditure or income, for example) rather than less amenable (such as being 'educated' or being 'healthy'); and more objective (in the sense of being the same to all) than subjective (health and education may differ from person to person).

To illustrate: the expenditure on consumption of a certain amount of rice measured in kilos is tangible (it can be recorded), amenable to quantification, and more objective (1 kg of rice is the same to anyone observing – assuming that there are no recall and respondent biases). In contrast, 'non-economic' measures are less tangible, less amenable to quantification, and rely on subjective proxies – for example, equating being 'educated' to the subjective concept of 'literacy', and being able to measure it accurately and consistently.

One could, however, easily turn the above example on its head. The expenditure on consumption of 1 kg of rice is not necessarily objective (the same to all), because the gain or loss of a dollar or a kilo of rice has a different impact on the welfare of a poor or hungry person than on the welfare of someone who is better off or not hungry. Given the flaws in both 'economic' and 'non-economic' poverty indicators, a pertinent question might be: do composite measures compensate for deficiencies or exacerbate them?

There is a plethora of composite poverty measures, including the Physical Quality of Life Index, the Combined Quality of Life Indices, the Human Suffering Index, the UNRISD Level of Living Index, the General Index of Development and Socioeconomic Development Index, the Food Security Index of the International Fund for Agricultural Development (IFAD), the Integrated Poverty Index, the Basic Needs Index, Women's Status Index and Relative Welfare Indicator, WHO Quality of Life indicators, the Combined Consumption Level Index, the Real Index of Consumption, the Index of Economic Well-being, and the Human Freedom Index.[2] However, the most famous composites are the UNDP indices: the HDI, GDI, and the *Human Poverty Index* (HPI). Table 3 summarises the components of each. The HDI, GDI and HPI each take account of well-being related to life expectancy and health, knowledge and education, and standard of living. There is also a gender-empowerment measure (GEM), which is a measure of gender equality in politics, business, and wages.[3]

What are the strengths and weaknesses of composites? Generally, they do not tell us how many people are poor, or who is poor; and there are several concerns relating to these UNDP measures: principally, the HDI and GDI show little more than income per capita, and the index components themselves correlate very closely, which leads one to question the rationale for having a separate measure. However, it is the fault of the component parts that more seriously undermines their validity: often data do not exist for a particular year, resulting in the nearest available year being used or estimated by UN country staff. For example, given the large gaps in recent health and education data, the 2002 HDI for many countries may be based on current GDP per capita but on education and health data dating from the mid-1980s or 1990s when the last survey was conducted, or on more recent guesses by UN country staff, extrapolating from GDP per capita extrapolation. (For a more detailed critique, see McGillivray 1991; Srinivasan 1994.) In sum, composite measures cannot compensate for the deficiencies in the components, and most of them simply emphasise 'economic' well-being.

**Table 3:** UNDP composite indicators and their components

| | Component indicators | | |
|---|---|---|---|
| | **Longevity** | **Knowledge** | **Decent standard of living** |
| HDI | • Life expectancy at birth | • Adult literacy rate<br>• Combined enrolment rate | • Adjusted income capita (US$ PPP) |
| GDI | • Female and male life expectancy at birth | • Female and male adult literacy rate | • Female and male earned income share |
| | | • Female and male combined enrolment ratio | |
| HPI | • Percentage of people not expected to live to 40 years. | • Adult illiteracy rate | • Percentage of the population without access to safe water |
| | | | • Percentage of the population without access to health services |
| | | | • Percentage of undernourished under-5s |

*Sources*: UNDP (1990; 1995; 1997; 1998).

## Conclusions

The measurement and assessment of poverty have never been so high on the international agenda. The new poverty discourse within development policy, exemplified in the rewritten mission statements of the IMF and the World Bank, coupled with the PRSP process, the marked growth of new surveys (household and participatory assessments), and the international consensus around the MDGs have given poverty a new centrality in development policy and research. The prospects for a clearer assessment of the well-being of the world's population have never been so good.

In light of this, the apparent contradiction between accepting the multi-dimensionality of the meaning of poverty and practising it more fully when measuring poverty is perhaps surprising. Poverty measures based on 'economic' well-being have had and continue to have a higher status than 'non-economic' indicators, not only for technical reasons but also because of their perceived objectivity due to assumptions about their tangible, quantifiable, and universal nature. These assumptions can be questioned. However, a more significant issue is not that of whether to use 'economic' or 'non-economic' poverty measures, but, rather, what question or series of questions should be asked of any indicator? It is worth taking a further step backwards and reviewing the process that creates a poverty statistic? Indicators are the product of a lengthy social process, which at every stage is shaped by the bias of the agents involved. Errors are virtually certain to occur in both the sampling and non-sampling aspects of research. In the early stages, bias appears in the choice of survey questions, and the interviewer may influence a respondent's answers. There may be inaccurate reporting of consumption, due to recall difficulties or concern over the use of the information. Under-representation of some groups in socio-economic surveys will happen because sample frames are often based on incomplete official records (such as national identity cards or electoral registers) that 'hide' those without full 'legal status', such as the homeless or slum-dwellers. It is also likely that a disproportionate

number of the 'hidden' households will be poor, and thus there will be a downward bias in the absolute number of the poor as calculated. Further, in the later stages, when the data are collated, processed, and interpreted, bias and further errors are introduced in the stages of inputting and defining how the raw data fit the definition of a specific indicator. With this in mind, salient questions might be: *How are these indicators created? Who collects them, and for what purpose? How is the sample frame created? Who is omitted? What definitions are used? How are these indicators used? What are they used for?* These questions are likely to lead to deeper reflection when using poverty data.

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## Notes

1. For example, the Human Development Index (HDI) and Gender Development Index (GDI) include only the conditions of being educated (literacy data) and being healthy (life-expectancy data), while the later Human Poverty Index (HPI) chose different indicators but did not expand the set of conditions that create well-being. The HDI and GDI contain the capabilities of schooling (combined enrolment data) but not health, on the grounds that life expectancy is a well-being condition and not a capability. The HPI does include the capabilities of schooling, access to health care and clean water, and nutrition (malnutrition of under-5s). Furthermore, the HDI and GDI include only the entitlement of exchange through income (measured as per capita GDP) and take no account of entitlements through endowment. The HPI disregards entitlements.
2. For a review of composite poverty measures, see McGillivray and Noorbakhsh (2004).
3. For greater detail on HDI methodology, see UNDP (1990; 1998). For GDI and GEM, see UNDP (1995); for HPI, see UNDP (1997).

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