Helpdesk Research Report: Wellbeing and Poverty Indices
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Query: Please provide information on key global indices and frameworks for monitoring multi-dimensional and wellbeing (objective and subjective), outlining their pros and cons and listing the key sources that discuss them. Please also list key literature that sets out and appraises related indicators.

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Introduction

The Commission on the Measurement of Economic Performance and Social Progress was created in 2008 to explore the limits of GDP as an indicator of economic performance and social progress. Much literature in the past has critiqued the inadequacy of income measures. The Commission was also tasked with considering additional information and tools required to produce a more relevant picture of progress. The Commission published its final report in 2009. It advocates for a shift in emphasis from measuring economic production to measuring the wellbeing of people. It considers wellbeing to be multi-dimensional, incorporating the following dimensions (see p. 14-15):

- Material living standards (income, consumption and wealth)
- Health
- Education
- Personal activities including work
- Political voice and governance
- Social connections and relationships
- Environment (present and future conditions)
- Insecurity, of an economic as well as a physical nature.

The Commission report emphasises that both objective and subjective wellbeing are important; and that measuring all of these aspects of wellbeing require objective and subjective data. It finds, however, that there are significant gaps in the availability of data required to effectively measure the various components of wellbeing.

This helpdesk research report surveys a range of indices developed to measure various aspects of wellbeing and poverty.

- Part 1 of the report focuses on multi-dimensional poverty and objective wellbeing indices: the Human Development Index, the Multidimensional Poverty Index, Indices of Social Development, MDG Indicators and various Gender indices.

- Part 2 focuses on indices that incorporate measures of subjective wellbeing: Gross National Happiness – Bhutan, the OECD's Better Life Index, Gallup's World Poll, the U-Index, and briefly HMG's Office of National Statistics recent work on wellbeing.

All of these indices have been created in part as a response to the perceived inadequacy of income measures (and other traditional poverty and wellbeing indices) in capturing all the elements important to wellbeing. The report outlines what the indices aim to measure and how. It also discusses strengths and critiques of each index, based on a review of key literature. Many of the indices can be used in conjunction in order to provide a more complete picture of people's wellbeing.

The following table provides a brief overview of the indices discussed in this report. **Section A of the Appendices provides more detailed information on indicators and methodology.**

Resources

Commission on the Measurement of Economic Performance and Social Progress, 2009, 'Report by the Commission on the Measurement of Economic Performance and Social Progress'
http://www.stiglitz-sen-fitoussi.fr/en/index.htm

	Human Development Index	Multidimensional Poverty Index	Indices of Social Development	Millennium Development Goals	Gross National Happiness, Bhutan	OECD Better Life Index	Gallup World Poll	U-Index
Measures	Capabilities	Multiple Deprivations	Aspects of Social Development	Development Goals	Multidimensional wellbeing	Multidimensional wellbeing	Multidimensional wellbeing	Duration of unpleasant state
Dimensions	Health Knowledge Income	Health Education Standard of Living	Civic activism Clubs & associations Interpersonal safety & trust Inter-group cohesion Gender equity and non-discrimination against women	Poverty eradication Primary education Gender equality Child mortality Maternal health HIV/AIDs, malaria and other diseases Environmental sustainability Global partnership	Psychological wellbeing Time use Community vitality Culture Health Education Environment Living standards Governance	Housing Income Jobs Community Education Environment Governance Health Life satisfaction Safety Work-life balance	Business/economics Citizen engagement Communications and technology Education and families Environment and energy Food and shelter Government and politics Health Law and order Religion and ethics Social issues Life satisfaction Work	Measures the time that an individual spends in an unpleasant state
Methodology	Aggregates a country's average achievements in the three dimensions; Equal weight is given to each dimension	Data is drawn from household surveys; Adopts an Adjusted Headcount Ratio; A household is considered multidimensionally poor if the weighted indicators in which the household is deprived add up to at least 33%	Based on over 200 measures from 25 data sources; Method of aggregation involves a variant of the matching percentiles method	MDGs break down into 21 quantifiable targets that are measured by 60 indicators	Dimensions are equally weighted. 'Sufficiency cutoffs' are established and applied for each dimension; data is then aggregated. The shortfalls from gross national happiness are identified and the squared distances from the cutoffs calculated. The resulting measure is the GNH	No established weights; user decides. Each country is represented by a flower, of which each petal corresponds to a dimension. The length of a petal represents a country's score for that dimension; its width stands for the importance that the user assigns to it.	Needs are operationally defined as met (1) or unmet (0) through combinations of surveyed items, all of which were answered on a dichotomous yes–no scale. Three types of subjective wellbeing tools are adopted in the survey – global life evaluation, positive feelings, and negative feelings	An episode is classified as unpleasant or pleasant. U equals 1 for an episode if max (negative emotions) › max (positive emotions), and 0 otherwise. The U-index is the fraction of an individual's waking time that is spent in an unpleasant state

	Human Development Index	**Multidimensional Poverty Index**	**Indices of Social Development**	**Millennium Development Goals**	**Gross National Happiness, Bhutan**	**OECD Better Life Index**	**Gallup World Poll**	**U-Index**
Strengths	Multi-dimensionality (moving beyond income focus); Simplicity; Adaptability	Multi-dimensionality (HDI does not consider multiple deprivation); Simplicity; Adaptability; Linkages with the MDGs	Coverage of new dimensions; High coverage of countries; Comparative approach	Multi-dimensionality (holistic view of poverty); Standardised measures; Set of entitlements; Disaggregated dashboard approach	Incorporates missing dimensions; Contributes to positive state-citizen relations; Contributes to effective policy-making/ outcomes; Allows for disaggregation and tracking changes	Incorporates missing dimensions; Representation of individual/societal preferences; Citizen participation; Understanding of cross-country differences	Incorporates missing dimensions; Broad-based and comparative; Representation of individual perceptions; Measurement issues – reducing the influence of past experiences	Overcomes measurement issues re: personal, cultural differences; Cardinal properties; Comparative; Psychological attributes
Key Critiques/ Weaknesses	Missing dimensions; Quality and availability of data; Measurement issues (mixing of stocks and flows; time-line; aggregation issues; choice of weights); Redundancy	Missing dimensions; Quality and availability of data; Insufficient consideration of trade-offs; Insufficient consideration of prices	Scope and definitions; Quality and availability of data; Insufficient understanding of concepts and linkages	Missing dimensions; Country focus (neglects outcomes of poorer groups); Lack of a composite; Quality and availability of data; Measurement issues (linear projections, which can be misleading)	Value judgments; Too subjective	Focus on developed countries; Lack of guidance for policies; Measurement issues	Constraints on comparisons; Measurement issues	Interpretation issues; Limited coverage; Limited understanding of cross-country differences

Part 1: Indices measuring multi-dimensional poverty and wellbeing

Part 1 of this report surveys literature on key global indices and frameworks that focus on monitoring multidimensional poverty and objective wellbeing. It discusses the Human Development Index (HDI), the Multidimensional Poverty Index (MPI), the Indices of Social Development (ISD) and MDG Indicators. It also provides a discussion of various gender indices. Most of the literature centres on the HDI as it is the most established index. There is also growing discussion on the use of the MPI. There is much less written on the ISD and on various gender indices, likely due in part to their recent introduction.

The indices discussed in this part of the report (aside from the MDGs) are composite indices. There is some debate in the literature about whether a composite index or a 'dashboard' approach is preferable. Composite indices can be useful in providing the big picture, summarizing complex and multi-dimensional issues, and allowing for benchmarks. Critics argue, however, that they do not provide helpful policy guidance; and they involve various judgments in their construction that may be perceived as arbitrary. Some argue that a 'dashboard' of complementary dimensional measures could be preferable (Kovacevic, 2010; Ravallion, 2011).

2. Human Development Index

The Human Development Index (HDI) was introduced in the 1990s as an alternative to undimensional and income based measures. It is a **composite index that aggregates a country's average achievements in three basic dimensions of human development: health, knowledge and income**. The aim is to provide a measure of capabilities, meaning the opportunities that a person has to exercise his or her freedom to live a particular chosen life (Klugman et al., 2011; Bagolin and Comim, 2008). The 2011 index has been calculated for 187 countries and territories (18 more than the 169 covered in the 2010 HDI).

The HDI has been revised several times since its inception in response to various criticisms. The most recent changes in 2010 include (see UNDP 2011a, Klugman et al., 2011; Klugman and Kovacevic, 2011; Lustig, 2011; Nguefack-Tsague et al., 2011):

- **Some of the indicators for the three basic dimensions have been changed**. Health is still measured by life expectancy at birth. The indicators for knowledge have changed, however, from a combination of adult literacy rate and school enrolment rates to a combination of the expected years of schooling for a school-age child and the mean years of prior schooling for adults aged 25 and older. This brings the HDI closer to a concept of outcomes. The indicator for income has also changed from purchasing-power-adjusted-per capital Gross Domestic Product (GDP) to purchasing-power-adjusted per-capital Gross National Income (GNI). The latter includes some remittances, which can be important to people living in developing countries.
- **The dimensions are now aggregated by geometric mean rather than arithmetic mean**. The arithmetic mean implied perfect substitutability, whereby poor achievement in one dimension was linearly compensated for by high achievement in another. In contrast, the geometric mean reduces the level of substitutability and acknowledges the existence of diminishing marginal returns to increasing one capability while keeping others constant.
- **The practice of capping variables that surpass the upper bounds has been eliminated**.

- **An inequality adjusted HDI (IHDI) that accounts for inequality in health, education and income has been introduced**. It is constructed to be directly comparable to the HDI: while the HDI can be viewed as an index of potential human development if achievements were distributed equally, the IHDI is the actual level of human development, accounting for inequality in the distribution of achievement. It falls below the HDI as inequality rises. The introduction of the IHDI is a reflection of better available data and measures. It is also a response to long-standing criticism that the HDI's reliance on average progress of a country conceals wide disparities in the distribution of human development in overall population.

The three dimensions of the HDI are assigned equal weight. The first step in calculating the HDI is **to create the dimension indices**: 'Minimum and maximum values (goalposts) are set** in order to transform the indicators into indices between 0 and 1. The maximums are the highest observed values in the time series (1980–2011). The minimum values can be appropriately conceived of as subsistence values. The minimum values are set at 20 years for life expectancy, at 0 years for both education variables and at $100 for per capita gross national income (GNI)' (HDR, 2011: 168). Having defined the minimum and maximum values, the subindices are calculated as follows:

$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

The next step is to aggregate the subindices to produce the HDI. **The HDI is the geometric mean of the three dimension indices**:

$$(I_{Life}^{1/3} * I_{Education}^{1/3} * I_{Income}^{1/3})$$

The HDI can now also be disaggregated in order to highlight disparities among different groups within a country: 'Disaggregated HDIs are arrived at by using the data for the HDI components pertaining to each of the separate groups; treating each group as if it was a separate country. Such groups may be defined relative to income, geographical or administrative regions, urban/rural residence, gender and ethnicity. Using disaggregated HDIs at the national and sub-national levels helps highlight the significant disparities and gaps: among regions, between the sexes, between urban and rural areas and among ethnic groups' (HDI website).

Strengths

- Multidimensionality: The HDI demonstrates the multidimensional nature of development and human well-being. It produces rankings of countries that are different from those based on per capita incomes (Klugman et al., 2011; Bagolin and Comim, 2008).
- Simplicity: The HDI is a popular index due to its simplicity, focusing on three dimensions of development. This, however, is seen by others as a weakness (Klugman et al., 2011).
- Adaptability: The HDI has over the years been able to adapt to criticism and methodological advancements, while maintaining its original ideas and dimensions (Bagolin and Comim, 2008)

Key Critiques/Weaknesses

- Missing dimensions: The HDI has been critiqued for being an imperfect measure of capabilities, by limiting itself to the enhancement of very basic capabilities of people (Klugman et al., 2011; Bagolin and Comim, 2008). Other important dimensions, such as equity, political freedoms, human rights, sustainability, engagement in a community, social cohesion, and happiness, are neglected. In addition, basic prerequisites for human security and survival, such as the absence

of poverty, undernourishment and shelter are also missing (Klugman et al., 2011; Foa, n.d.; Bilbao-Ubillos, 2011; Bagolin and Comim, 2008).

- Further, the HDI has been shown to be 'poorly correlated with a range of important dimensions of life: mental wellbeing, empowerment, political freedom, social and community relations, inequality, work conditions, leisure, political and economic stability, and the environment' (Ranis et al., 2006, cited in Alkire, 2007: 2).

- The new HDI, introduced in 2010, did not include any additional dimensions. This was due primarily to measurement difficulties and political controversies over the incorporation of such variables as civil liberties, political freedoms and accountability (Lustig, 2011). While the introduction of an inequality adjusted HDI aims to address prior criticisms about the neglect of inequality, Bilbao-Ubillios (2011) argues that this new effort is insufficient to assess the level of economic and social cohesion in a country.

- Quality and availability of data: Similar to other indices, the HDI suffers from basic problems related to low-quality and lagged data (Bagolin and Comim, 2008).

- Mixing of stocks and flows: The HDI indicators have been critiqued for mixing the measurement of stocks and flows. Stocks represent the quantity of a variable at a specific point in time, which may have been accumulated in the past (e.g. life expectancy); whereas flows are variables measured in units per unit time (e.g. income measures).

- Time-line: Due to lags in the impact of policy changes in education and health, the index has been criticised for measuring the outcomes of past efforts rather than the effects of present or recent policy changes (Kovacevic, 2010). In addition, since the index reflects the situation in a country at a given time, it does not allow for consideration of issues of sustainability and the prospects for medium and long term development (Bilbao-Ubillos, 2011).

- Aggregation formula: The HDI's functional form was strongly critiqued in the past for its linear aggregation over three dimensions, which implied perfect substitutability between the dimensions. As noted above, a geometric mean was adopted in 2010 in order to aggregate dimensional indices, which has addressed this weakness by allowing for marginal rates of substitution (Klugman et al., 2011; Kovacevic, 2010; Bagolin and Comim, 2008; Bilbao-Ubillios, 2011). Ravallion (2010) argues however that the trade-offs (marginal rates of substitution) implicit in the new HDI are problematic: 'by adding up average income per capita with life expectancy the HDI implicitly puts a monetary value on an extra year of life, and that value is deemed to be much lower for people in poor countries than rich ones' (p. 14).

- Choice of weights: An ongoing critique of HDI's aggregation concerns the assignment of equal weights to the three dimensions (Klugman et al., 2011; Kovacevic, 2010; Bagolin and Comim, 2008). Ideally, the weights should be linked to individual preferences, a collective social choice process or a strong normative argument (Klugman et al., 2011). The Human Development Report has attempted to justify this method by explaining that all three dimensions are equally important thus deserving of equal weights (UNDP, 1991, cited in Kovacevic, 2010 and Bagolin and Comim, 2008). Further, a study by Nguefack-Tsague et al. (2011) finds statistical support for the HDI's use of equal weighting.

- Redundancy: The HDI has been critiqued for providing redundant information due to the high correlation of its component variables (McGillivray, 1991, cited in Kovacevic, 2010; and Bagolin and Comlin, 2008). Others have argued instead that the component variables are not highly correlated with each other and rather that the correlation varies in different parts of country distribution (Kovacevic, 2010).

Resources

Bagolin, I. P. and Comim, F. V., 2008, 'Human Development Index (HDI) and its family of indexes: an evolving critical review', Revista de Economia, v. 34, n. 2, pp. 7-28

http://ojs.c3sl.ufpr.br/ojs-2.2.4/index.php/economia/article/viewFile/12293/8511

Bilbao-Ubillos, J., 2011, 'The Limits of Human Development Index: The Complementary Role of Economic and Social Cohesion, Development Strategies and Sustainability',Sustainable Development
http://onlinelibrary.wiley.com/doi/10.1002/sd.525/full

Kovacevic, M., 2010, 'Review of HDI Critiques and Potential Improvements', Human Development Research Paper 33. UNDP–HDRO, New York
http://hdr.undp.org/en/reports/global/hdr2010/papers/HDRP_2010_33.pdf

Klugman, J. and Kovacevic, M., 2011, 'Measuring Wellbeing: Some Contributions of the Human Development Approach', 23 May
http://isi2011.congressplanner.eu/pdfs/450269.pdf

Klugman, J., Rodriguez, F. and Choi, H.J., 2011, 'The HDI 2010: New Controversies, Old Critiques', Journal of Economic Inequality, vol. 9, no. 2, pp. 249-288
http://www.springerlink.com/content/c0p3663661673k4v/

Nguefack-Tsague, G., Klasen, s. and Zucchini, W., 2011, 'On Weighting the Components of the Human Development Index: A Statistical Justification', Journal of Human Development and Capabilities, vol. 12, no. 2, pp. 183-202
http://www.tandfonline.com/doi/abs/10.1080/19452829.2011.571077

Ravallion, M., 2010, 'Mashup Indices of Development', Policy Research Working Paper, The World Bank, Washington, DC
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1683903

UNDP, 2011a, 'Frequently Asked Questions about the Human Development Index', UNDP
http://hdr.undp.org/en/media/FAQs_2011_HDI.pdf

HDI website: http://hdr.undp.org/en/statistics/hdi/

See also the following two documents on developing an inequality-adjusted HDI:

Alkire, S. and Foster, J., 2010, 'Designing the Inequality-Adjusted Human Development Index (HDI)', Working Paper, no. 37, Oxford Poverty & Human Development Initiative (OPHI), University of Oxford
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1815248
This paper proposes a method for adjusting the HDI to reflect the distribution of human development achievements across the population, and across dimensions, using an inequality measure from the Atkinson family. We begin with a discussion of the proposed indices in an idealized setting where variables and their scales have been identified and the data are available. We then address the practical issues that arise when applying these methods to real data. The final section presents and evaluates another related approach.

Grimm, M., et al., 2008, 'A Human Development Index by Income Groups', World Development, vol. 36, no. 12, pp. 2527–2546
http://www.sciencedirect.com/science/article/pii/S0305750X0800106X
Abstract: One of the most frequent critiques of the HDI is that it does not take into account inequality within countries. We suggest a methodology which allows to compute the three components and the overall HDI for quintiles of the income distribution. This allows comparisons of the level in human development of the poor and non-poor within and across countries. An empirical illustration shows large discrepancies in human development within the countries, especially in Africa. These discrepancies are lower the higher the HDI is, but only weakly so. Inequality in income is generally higher than inequality in education and life expectancy.

3. Multidimensional Poverty Index

In addition to the introduction of an Inequality-adjusted HDI, the 2010 Human Development Report introduces a Multidimensional Poverty Index (MPI), developed by Alkire and Santos. It is a new measure **designed to portray the multiple deprivations faced by the most severely disadvantaged**. While the HDI uses aggregate country-level data, the Alkire–Santos MIP **relies on micro datasets (household surveys), which are then aggregated to the country level** (UNDP, 2011b; Alkire and Santos, 2010). The 2011 Human Development Report (HDR) presents estimates for 109 countries, representing approximately 79% of the world's population).

The **MPI adopts ten variables that fall under the same three dimensions as the HDI** (see Alkire and Santos, 2010: 7):

1. <u>Health</u> (each indicator weighted equally at 1/6)
- Child Mortality: If any child has died in the family
- Nutrition: If any adult or child in the family is malnourished
2. <u>Education</u> (each indicator weighted equally at 1/6)
- Years of Schooling: If no household member has completed 5 years of schooling
- Child School Attendance: If any school-aged child is out of school in years 1 to 8
3. <u>Standard of Living</u> (each of the six indicators weighted equally at 1/18)
- Electricity: If household does not have electricity
- Drinking water: If does not meet MDG definitions, or is more than 30 minutes walk
- Sanitation: If does not meet MDG definitions, or the toilet is shared
- Flooring: If the floor is dirt, sand, or dung
- Cooking Fuel: If they cook with wood, charcoal, or dung
- Assets: If do *not* own *more than one* of: radio, television, telephone, bike, motorbike or refrigerator and do not own a car or truck.

The MPI demonstrates the combination of deprivations that a household may experience at the same time. It adopts the mathematical structure proposed by Alkire and Foster, which involves an Adjusted Headcount Ratio (M_o). M_0 allows weighting each dimension differently, referred to as 'nested weights'.

To identify who is poor among the population, a two-step procedure is applied using two different kinds of cutoffs. First, all individuals who are deprived in any dimension (those who fall below the poverty line or deprivation cut-off) are identified. Second, all individuals considered multidimensionally poor are identified. This requires the selection of another cutoff. **A person is identified as poor if her weighted deprivation count is greater than or equal to the second cutoff** (Alkire and Santos, 2010)

The MPI is the product of two numbers: the Headcount *H* or percentage of people who are poor, and the Average Intensity of deprivation *A* – which reflects the proportion of dimensions in which households are deprived. A household is considered multidimensionally poor if the weighted indicators in which the household is deprived add up to at least 33% (UNDP, 2011b; Alkire and Santos, 2010).

Important characteristics of M_0 are that it is decomposable by population subgroups; and can also (after identification) be broken down by dimension (Alkire and Santos, 2010).

Note: for detailed discussion of the Alkire and Foster method, see Alkire and Santos (2010: 9-11)

Strengths

- Multidimensionality: The MPI shifts attention from solely income to include other important dimensions of poverty (Alkire and Santos, 2010). It provides a useful profile of the poor, demonstrating whether the poor in some societies suffer more from multiple deprivations than in other societies. Societies with a greater degree of multiple deprivations would be considered worse off, other things being equal. In addition, the experience of multiple deprivations is considered to cause greater individual and social harm (Klugman et al., 2011; Duclos, 2011). 'By focusing on multiply deprived individuals, the MPI gives more importance to poverty in multiple dimensions that the HDI, which is neutral to the existence of multiple deprivation' (Duclos, 2011: 2). It also contributes to a better understanding of the interconnectedness among deprivations and can help to identify poverty traps (Alkire and Santos, 2010).
- Simplicity: The adjusted multidimensional headcount ratio adopted by the MPI is beneficial for its clarity and simplicity, when compared to other multidimensional poverty indices (Silber, 2011).
- Adaptability: The choice of dimensions, weights and dual cut-offs is not pre-determined. The methodology provides a general framework that is flexible for users and can be adapted over time based on more specific insights (Alkire and Foster in Lustig, 2011). Such flexibility could include 'an opportunity for analysts to alter the implicit market prices reflected in the consumption baskets chosen by the various households' (Thorbecke, 2011: 486). The flexibility of the approach could also be considered a weakness, however, if decisions about dimensions, weights and poverty cut-offs are seen to be made arbitrarily (Thorbecke, 2011).
- Linkages with the MDGs: The MPI employs indicators that relate to the MDGs: 8 of the 10 indicators are directly linked to the MDGs, while the other two (electricity and flooring) could be related. As such, the MPI can be an effective tool for monitoring progress towards achieving the MDGs. By adopting households as the 'base' population, the MPI allows for a composite; whereas the differing base population (or 'denominator') for the various MDG indicators make it difficult to develop a composite MDG index. Few studies on the MDGs have reflected on the interconnections between indicators. Further, the focus of the MDGs on countries and the number of countries on target underemphasises poor people in large countries and the outcomes achieved by poorer groups (Alkire and Santos, 2010; Chatterjee and Kumar, 2010). MPI analysis has often focused instead on the actual number of people who are deprived (Alkire and Santos, 2010). Ravallion (2010 and 2011) questions, however, the utility of a composite (citing the MPI and the HDI) and whether it is actually advantageous to a 'dashboard' of multiple indices. He argues in particular that an aggregate index is inadequate in guiding policy action to address income and services deprivation.

Key Critiques/Weaknesses

- Missing dimensions: The MPI adopts the same three dimensions as the HDI, which is useful for comparisons. However, the MPI is thus subject to the same criticisms faced by the HDI for not including additional important dimensions (as discussed above). In addition, Alkire (2007) identifies the following missing dimensions of poverty data (see also the related discussion in the MDGs section). They are considered to be of value to poor people and policy relevant, yet there is inadequate data in these areas. The following indicators are proposed for the five dimensions (see Alkire, 2007):

- o **Employment quality**: informal employment; income from self-employment; occupational safety and health; and under- and over-employment; level of discouraged unemployment (Lugo, 2007);
- o **Agency and empowerment**: perceptions of control, who makes decisions about different areas of household life and whether the respondent could if he or she chose (Ibrahim and Alkire, 2007)
- o **Physical safety**: incidence and frequency of both general crime and conflict-related violence against person and property; and perceptions of threat(s) to security and safety, now and in the future (Diprose, 2007)
- o **The ability to go without shame and humiliation**: shame of being associated with poverty or the stigma of poverty; shame proneness – tendency to experience shame in response to specific negative events; external humiliation centred on respectful treatment, unfair treatment, discrimination and perceptions that one's background impedes mobility; internal humiliation based on levels of accumulated humiliation at the individual level (Zavaleta, 2007)
- o **Psychological and subjective wellbeing**: psychological wellbeing focused on perceptions of meaning of life based on own potential; and the ability to strive towards excellence in fulfilling this idea; subjective wellbeing based on life satisfaction (including material wellbeing, health, work, physical safety, relations with friends and with family, education, one's neighborhood, the ability to actively help others, and wellbeing from spiritual/religious/philosophical beliefs) and happiness (Samman, 2007)

- Quality and availability of data: As with other indices, the dimensions chosen are also limited by the availability of data. This constraint is particularly pronounced in the case of the MPI, however, as all the data must be obtained from the same survey/sampled household. Most surveys do not cover all the aspects important to a comprehensive assessment of poverty (Ravallion, 2011).
- Insufficient consideration of trade-offs: Multidimensional poverty indices have generally been critiqued for not paying sufficient attention to trade-offs (or marginal rates of substitution) between different dimensions when aggregating across them (Ferreira, 2011). As the Alkire and Santos MPI relies on household surveys, it would have data on not only deprivations in some dimensions but also on possible surpluses (above the deprivation thresholds) in other dimensions. The possibility of trade-offs among dimensions, however, and how this might influence the well-being of households, is not considered or made explicit (Thorbecke, 2011; see also Lustig, 2011 and Ravallion, 2011).
- Insufficient consideration of prices: The role played by prices is not considered in the MPI; however, market prices are important to the issue of trade-offs and marginal rates of substitution (Ravallion, 2011; Birdsall, 2011). The flexibility of the MPI could possibly allow, however, for the implicit consideration of market prices, as noted above (Thorbecke, 2011).

Resources

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http://www.springerlink.com/content/8206624073516540/

Ravallion, M., 2010, 'Mashup Indices of Development', Policy Research Working Paper, The World Bank, Washington, DC
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1683903

Silber, J., 2011, 'A Comment on the MPI Index', Journal of Economic Inequality, vol. 9, no. 3, pp. 479-481
http://www.springerlink.com/content/n378420585604444/

Thorbecke, E., 2011, 'A Comment on Multidimensional Poverty Indices', Journal of Economic Inequality, vol. 9, no. 3, pp. 485-487
http://www.springerlink.com/content/3vn7u363156322jl/

UNDP, 2011b, 'Frequently Asked Questions about the Multidimensional Poverty Index', UNDP
http://hdr.undp.org/en/media/FAQs_2011_MPI.pdf

For further discussion on multidimensional poverty measurement, see also:

Alkire, S. and Foster, J., 2011, 'Understandings and Misunderstandings of Multidimensional Poverty', Journal of Economic Inequality, vol. 9, no. 2, pp. 289-314
http://www.springerlink.com/content/b1r10r1952302037/fulltext.pdf
Abstract: Multidimensional measures provide an alternative lens through which poverty may be viewed and understood. In recent work we have attempted to offer a practical approach to identifying the poor and measuring aggregate poverty (Alkire and Foster, J Public Econ, 2011). As this is quite a departure from traditional unidimensional and multidimensional poverty measurement—particularly with respect to the identification step—further elaboration may be warranted. In this paper we elucidate the strengths, limitations, and misunderstandings of multidimensional poverty measurement in order to clarify the debate and catalyse further research. We begin with general definitions of unidimensional and multidimensional methodologies for measuring poverty. We provide an intuitive description of our measurement approach, including a 'dual cutoff' identification step that views poverty as the state of being multiply deprived, and an aggregation step based on the traditional FGT measures. We briefly discuss five characteristics of our methodology that are easily overlooked or mistaken and conclude with some brief remarks on the way forward.

Alkire, S. and Foster, J., 2011, 'Counting and Multidimensional Poverty Measurement', Journal of Public Economics, vol. 95, no. 7-8, pp. 476-487
http://www.sciencedirect.com/science/article/pii/S0047272710001660
Abstract: This paper proposes a new methodology for multidimensional poverty measurement consisting of an identification method ρ_k that extends the traditional intersection and union approaches, and a class of poverty measures M_α. Our identification step employs two forms of cutoff: one within each dimension to determine whether a person is deprived in that dimension, and a second across dimensions that identifies the poor by 'counting' the dimensions in which a person is deprived. The aggregation step employs the FGT measures, appropriately adjusted to account for multidimensionality. The axioms are presented as joint restrictions on identification and the measures, and the methodology satisfies a range of desirable properties including decomposability. The identification method is particularly well suited for use with ordinal data, as is the first of our measures, the adjusted headcount ratio M_0. We present some dominance results and an interpretation of the adjusted headcount ratio as a measure of unfreedom. Examples from the US and Indonesia illustrate our methodology.

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4. The ISS's Indices of Social Development

The Institute of Social Studies' Indices of Social Development (ISD) are based on over 200 measures from 25 data sources covering the years 1990 to 2010. As a contribution to wider work on quantifying Social Development dimensions and outcomes, the five indices of social development include (also referred to as types of institutions) are (de Haan et al., 2011: 10-11; see also Foa, n.d. and Foa and Turner, n.d.):

- Civic activism, referring to the strength of civil society, measured by levels of civic activism and access to information.
- Clubs and associations, referring to relations of trust and cohesion within local communities. This measures the level of participation in voluntary activities conducted amongst individuals in the same locale, such as a village or neighbourhood.
- Interpersonal safety and trust, referring to norms of nonviolence between persons in society.
- Inter-group cohesion, the relations of trust and cohesion between defined ethnic, religious, or linguistic identity groups. This measures the extent or absence of routinized conflict between ethnic, religious, or other social identity groups.
- Gender equity and non-discrimination against women, drawing on an already rich theoretical literature and development of measurement. This estimates the level of discrimination occurring against women.

'**The nature of the underlying indicators is varied, consisting of perceptions (e.g. of trust), recorded incidences (e.g. crime), and expert opinions (e.g. crime advisories)**'. Data coverage varies greatly depending on indicator and data source; however, the data sources combined allow for estimates of social behaviour and norms of interaction across a broad range of societies. The ISD's method of aggregation involves a 'variant of the **matching percentiles method** used by Lambsdorff (1999, 2006), similar to the methodology used by the Worldwide Governance Indicators. **The approach converts a series of databases, each of which have different coverage, into one unified set that assigns scores or values (between 0 and 1) based on the ranking of each of the countries**. Each index used has a minimum of three independent sources' (de Haan et al., 2011: 11).

'The basic assumption behind this methodology is that for each of the dimensions of social development there is some latent value (Li) representing the objective level of that dimension in country i. Each of the available indicators yi represents, on a different functional transformation (f) and with varying degrees of measurement error εi, level Li such that:

$$(yi) = f(Li) + \varepsilon i$$

The matching percentiles method is iterative, with each indicator being added to the index in successive rounds which progressively refine the country scores' (Foa, n.d.: 10-11).

Strengths

- Coverage of new dimensions: The database allows for measurement and analysis of 'invisible' dimensions of development (at the meso and macro level) previously excluded in indices of well-being. These dimensions include levels of social cohesion and social capital; degree of discrimination; extent of social exclusion; and governance and accountability issues. The ISD can complement other indices and measures of development. It can also contribute to explanations of other measures (de Haan et al., 2011).
- High coverage of countries: This methodology adopted by the ISD is useful for handling data with many missing values, without imputing values. It allows for the coverage of a larger number of countries (as high as 181 countries) than reliance on a single indicator (Foa and Tanner, n.d.), and broadens the scope for cross-country statistical and analytical work on the effects of social development and the relationship with economic development (de Haan et al., 2011).
- Comparative approach: The ISD database allows for comparisons of different dimensions of social development within one country and across countries. In addition, there is an increasing possibility of tracking changes over time, which would enable policy makers to monitor social development progress over time at country and regional levels (de Haan et al., 2011).

Key Critiques/Weaknesses

- Gaps in scope and issues of definition – this includes important elements of social development but (a) misses important areas and (b) does not frame existing ones in ways that resonate with social development specialists (eg 'clubs and associations')
- Quality and availability of data: Data for the index comes from a large variety of independent sources and the quality of the underlying indicators is varied. This varied nature of data has implications for the analysis (de Haan et al., 2011)
- Insufficient understanding of concepts and linkages: While indices to measure cohesion are considered important, there is still insufficient knowledge about cohesion. As such, findings should not be over-interpreted, for example correlations with growth. In addition, the measurement of inter-group cohesions can also be problematic as data on groups' own perceptions of being discriminated against is limited. Further, understanding of the various definitions of groups used globally is complicated and challenging (de Haan et al., 2011).

Resources

de Haan, A., va Staveren, I., Webbink, E. and Foa, R., 2011, 'The Last Mile In Analysing Well-Being And Poverty: Indices of Social Development', Working Paper No. 2011-03, Institute of Social Studies, The Hague
http://www.indsocdev.org/resources/ISS-ISD%20Working%20Paper%202011-03.pdf

Foa, R., n.d., 'Indices of Social Development : Handbook', Institute of Social Studies, The Hague
http://www.indsocdev.org/resources/Indices%20of%20Social%20Development%20Handbook.pdf

Foa, R. and Turner, J.C., n.d., 'Methodology of the Indices of Social Development', Institute of Social Studies, The Hague
http://www.indsocdev.org/resources/Methodology%20of%20the%20Social%20Development%20Indices.pdf

See also:

Dulal, H. B. and Foa, R., 2011, 'Social Institutions as a Form of Intangible Capital', Institute of Social Studies, The Hague
http://repub.eur.nl/res/pub/26762/ISS-ISD%20Working%20Paper%202011-01.pdf

Foa, R., 2008, 'Social Institutions and Human Development', Social Development Working Papers, World Bank, Washington, DC
http://www.capabilityapproach.com/pubs/RobertoFoaSocial%20Institutions%20and%20Human%20Development.pdf

5. MDG Indicators

The Millennium Development Goals (MDGs) comprise 8 development goals:

- Goal 1: Eradicate extreme poverty and hunger
- Goal 2: Achieve universal primary education
- Goal 3: Promote gender equality and empower women
- Goal 4: Reduce child mortality rates
- Goal 5: Improve maternal health
- Goal 6: Combat HIV/AIDS, malaria, and other diseases
- Goal 7: Ensure environmental sustainability
- Goal 8: Develop a global partnership for development

The eight MDGs break down into 21 quantifiable targets that are measured by 60 indicators. The targets involve:

- Poverty and hunger eradication: halve the proportion of people whose income is less than $1 a day; productive employment and decent work for all; halve the proportion of people suffering from hunger
- Primary education: universal primary education
- Gender equality: eliminate gender disparity in education
- Child health: reduce child mortality rate by two-thirds
- Maternal health: reduce maternal mortality ratio by three-quarters; universal access to reproductive health
- HIV/AIDs, malaria and other diseases: halt and begin to reverse spread of HIV/AIDs; universal access to AIDs treatment; halt and begin to reverse spread of malaria and other major diseases
- Environmental sustainability: reverse loss of environmental resources; reduce biodiversity loss; halve the proportion of the population without sustainable access to safe drinking water and basic sanitation; significant improvement in slum dwellers' lives
- Global partnership: develop transparent trading and financial system; address special needs of least developed countries; address special needs of landlocked and small island countries; ease debt burdens; provide access to affordable drugs; provide access to new technologies

Strengths

- Multidimensionality: The MDGs assess the multidimensionality of poverty more holistically than previously (Chatterjee and Kumar, 2010).
- Standardised measures: The MDGs provide standardised methods of measuring poverty among countries and social progress within a country over time. Further, there is global consensus on measuring these dimensions of poverty (Chatterjee and Kumar, 2010).
- Set of entitlements: The MDGs are seen as a set of entitlements as governments are required to meet certain targets by certain dates (Chatterjee and Kumar, 2010).
- Disaggregated dashboard approach: The absence of a composite MDG index has been critiqued as the lack of aggregation of dimensions makes it difficult to see which countries are making more or less progress overall (De Muro et al., 2011; Chatterjee and Kumar, 2010; see also Alkire and Santos, 2010). However, aggregation has also been critiqued for resulting in a loss of a certain amount of information and for producing less transparent results (De Muro et al., 2011). As noted above, Ravallion (2010 and 2011) advocates for a dashboard approach; he argues that an aggregate index would have to be disaggregated in order to provide guidance for policy actions which questions the utility of a composite index.

Key Critiques/Weaknesses

- Missing dimensions: Alkire and Foster (2009) identifies the following as key missing dimensions of MDG data sources: safety from violence (gang violence, organised crime or petty thieves, police violence, violent conflict, domestic violence); informal employment or quality of work (safety at work, security of work, living wage); empowerment (increase in agency, people centred initiatives, collective action); discrimination and humiliation (stigma, isolation); and psychological and subjective wellbeing (micro-level behaviour, adaptive behaviour, social and cultural aspects). *See the discussion on missing dimensions of poverty data in the section on MPI for further discussion.
- Country focus: The MDGs focus on countries; they do not provide information on the subnational level; by gender; by disadvantaged groups; nor by rural and urban categories. The aggregative MDG index for a country does not indicate the actual MDG outcomes achieved by poorer groups (Chatterjee and Kumar, 2010; Alkire and Santos, 2010).
- Lack of a composite: As noted above, the absence of a composite MDG index has been critiqued for hindering comparisons in totality.
- Quality and availability of data: Variations and gaps in data make it difficult for reporting on the MDGs. Poorer countries suffer in particular from a lack of data on MDG indicators. Data gathering is often fragmented among different government ministries and agencies. An associated problem is long delays in making MDG estimates available, which makes it difficult to formulate timely policies (Chatterjee and Kumar, 2010).
- Linear projections: Projections of MDG indicators have often relied on simple linear projections. Results based on such a methodology can be overly optimistic as a linear projection is based on the assumption that further improvements will occur at the same absolute rate as in the past. This, however, is not a realistic assumption. For example, it is often easier to increase primary education attendance when departing from low levels; but a greater level of effort and investment is required at higher levels. A logarithmic trend may be more representative (Osorio, 2008).

Resources

Alkire, S. and Foster, J., 2009, 'The MDGs: Multidimensionality and Interconnection', Paper prepared for DFID

http://www.ophi.org.uk/wp-content/uploads/OPHI-RP-8a.pdf?cda6c1

Chatterjee, S. and Kumar, R., 2010, 'Assessing Social Outcomes through the Millennium Development Goals', in Poverty and Sustainable Development in Asia: Impacts and Responses to the Global Economic Crisis, eds. A. Bauer and M. Thant, Asia Development Bank, pp. 97-111
http://ncaeradbpovnet.org/images/poverty-sustainable-development-asia.pdf#page=109

Osorio, R.G., 2008, 'Alternatives for Projecting MDG Indicators', Technical Paper Series, No. 2. International Poverty Centre (IPC), Brazil
http://www.undp-povertycentre.org/pub/IPCTechnicalPaper2.pdf

6. Gender Indices

The Gender Inequality Index

The 2010 Human Development Report also introduced the Gender Inequality Index (GII). It is a '**composite measure reflecting inequality in achievements between women and men in three dimensions: reproductive health, empowerment and the labour market**' (UNDP, 2011c: 1). It replaces the Gender Development Index (GDI) and the Gender Empowerment Measure (GEM). The GII incorporates methodological improvements to the GDI and GEM and alternative indicators. 'The health dimension is measured by two indicators: **maternal mortality ratio and the adolescent fertility rate**. The empowerment dimension is also measured by two indicators: the **share of parliamentary seats held by each sex and by secondary and higher education attainment levels**. The labour dimension is measured by **women's participation in the work force**' (UNDP, 2011c: 1). The GII is concerned more with outcomes.

The GII adopts a method similar to the Inequality-adjusted Human Development Index. The index is 'based on the general mean of general means of different orders—the first aggregation is by the geometric mean across dimensions; these means, calculated separately for women and men, are then aggregated using a harmonic mean across genders' (see Klugman et al., 2011: 283). Higher GII values indicate lower HDI achievement. Data is available for 138 countries (Klugman et al).

Strengths

- Choice of dimensions and indicators: The GII is unique in its focus on issues of educational attainment, economic and political participation, and reproductive health. None of the existing gender gap and gender equality measures incorporate reproductive health (Gaye et al., 2010; Permanyer, n.d.). The lack of inclusion of an earned income component is also considered beneficial; such components have often been estimated based on questionable assumptions and do not account for inequalities in intra-household distribution of resources (important in analysis of gender inequality). Instead, labour participation provides a more reliable estimate of economic participation (although it fails to include informal sectors where women are overrepresented) (Permanyer, n.d.)

Key Critiques/Weaknesses

- Availability of data: The GII faces major data limitations, similar to other measures of gender disparities, which constrains the choice of indicators. The labour market dimension, for example, lacks information on incomes, employment and on unpaid work by women. In addition, a time use dimension, which is important to gender inequality, is not taken into consideration due to insufficient data (Klugman and Kovacevic, 2011; UNDP, 2011c).

- Complex functional form: While the GII is considered a novel way of conceptualizing gender inequality, Permanyer (n.d.) argues that the functional form of the index is excessively and unnecessarily confusing.
- Combination of two types of indicators: The inclusion of two kinds of indicators (indicators that compare the relative performance of women in relation to men alongside absolute women-specific indicators) can lead to conceptual and methodological problems. The GII becomes split between the two concepts, which can confuse interpretations and make the index more complex (Permanyer n.d.).

Social Institutions and Gender Index

The Social Institutions and Gender Index (SIGI) was developed in 2010 on the basis of the Gender and Institutions Database by the OECD. It **focuses on critical societal norms and institutions which affect how women fare**, covering five categories**: family code, physical integrity, son preference, civil liberties and ownership rights**. These five domains have 12 indicators in total. They concern both formal institutions – rights and laws – and informal institutions – social and cultural practices. There are equal weights of the five categories but there is a weighting within each category due to nonlinearity of indicators. The SIGI has been applied to 102 non-OECD countries (van Staveren, 2011; Gaye et al., 2010).

Strengths

- Choice of dimensions and indicators: By focusing on gendered institutions and processes, rather than outcomes, SIGI covers a range of issues largely ignored by other indices. It can complement the GII by tracking reforms and social institutions tracking gender based equalities measured by GII (Gaye et al., 2010).

Key Critiques/Weaknesses

- Combination of two types of indicators: Similar to the GII, SIGI combines indicators that reflect a comparison of the positions of women and men, and others that focus on the restrictions of the rights of women and girls without contrasting with the situations of men and boys. This could result in confusion in interpretation (Gaye et al., 2010).

Global Gender Gap Index

The Global Gender Gap Index (GGGI), introduced in 2006 by the World Economic Forum, includes five dimensions of gender inequality: **economic participation, economic opportunity, political empowerment, educational attainment and health and well being**. These are measured using 14 indicators. The GGI is calculated for 154 countries and is published annually (Gaye et al., 2010: 6).

'The index measures gaps in human development variables between men and women, measured as female/male ratios. […]There are no weights between the four categories of indices (economic, education, health and politics). All indicators are normalized in order to ensure equal representation in each sub-index. These weights are calculated through the standard deviation per 1 percentage point change of each indicator, which are translated into weights. This means that the weighting of GGGI is quite opposite the weighting in SIGI: whereas in SIGI, indicators receive weights according to their relative importance in a principal component analysis, and sub-indices are squared in order to express inequality aversion, in GGGI every indicator receives equal weight by eliminating differences

in the spread of each variable, and hence, in the way higher or lower scores affect the value of the four sub-indices' (van Staveren, 2011: 25).

Key Critiques/Weaknesses

- Inclusion of income: The inclusion of income data in the GGGI is problematic as it is difficult to obtain reliable data. As such, earned income is often estimated based on data on labour force participation and wage differences. The GGGI also includes female labour force participation as a variable, which implies a tautology (van Staveren, 2011).
- Complex functional form: The elaborate weighting procedure adopted by the GGGI makes interpretation of the index and comparisons over time difficult (Gaye et al., 2010).

Women's Economic Opportunities Index

The Women's Economic Opportunities Index (WEOI) is developed by the Economic Intelligence Unit and was first published in 2010. There are five dimensions - **labour policy and practice; access to finance; education and training; women's legal and social status; and general business environment** – which are made up of 26 indicators. 'It considers the laws, regulations, practices, customs and attitudes that allow women to participate in the workforce under conditions roughly equal to men, whether as wage-earning employees or as owners of a business' (Gaye et al., 2010: 27). Data is available for 184 countries. The five index categories have equal weights and each sub-index consist of an unweighted average of underlying indicators (van Staveren, 2011). .

Strengths

Choice of dimensions: It is the only index that does not measure gender gaps but constraints to women's economic opportunities and the general business environment for men and women. It can thus complement various other gender indices (van Staveren, 2011).

Key Critiques/Weaknesses

Availability of data: The WEOI, like the SIGI, focuses on institutions that affect women's participation. However, due to data constraints, the focus is limited to the formal sector, 'which means that the measure likely provides better insights for developed countries and urban elites in developing countries than for developing countries more generally' (Gaye et al., 2010: 27).

Gender Equality Index

The Gender Equality Index (GEI), drawn from the Indices of Social Development database, was first published in 2010. 'The index includes **input measures, mainly resources and rights, as well as outcome measures, mainly functionings or wellbeing indicators, as well as attitudinal measures, referring to social norms, as gendered institutions**. The GEI includes 21 indicators, from six different sources, international sources as well as regional sources, quantitative and qualitative measures. Two indicators are themselves composites, namely women's economic rights and women's social rights' (van Staveren, 2011: 8). The index adopts the matching percentiles method, discussed in the section on 'Indices of Social Development'.

Strengths

<u>Balanced index</u>: The GEI incorporates a good balance of input indicators, institutional constraints and output measures of gender equality (van Staveren, 2011).

Comparison of the five indices

Van Staveren (2011: 15-16) positions each of the five indices discussed in this section along the stages of a Capability Approach. This Approach is comprised of:

- 'Resources: real access to inputs like land, income and credit. This also includes wage variables for example, such as gender wage inequality, as well as access to particular services such as child care, road infrastructure and business support.
- Institutions: formal institutions such as laws and rights, and informal institutions such as social norms and cultural practices. Gendered institutions are asymmetric between men and women and often form unequal constraints for women for their capabilities and functionings. Examples are women's lack of land rights and stereotype perceptions of working mothers as less deserving of jobs or as inadequate parents.
- Capabilities: directly enabling peoples' doings and beings, such as education and health.
- Functionings: actual doings and beings that one has reason to value, such as being literate and having a long life expectancy'.

The five indices are focused on:

- 'GEI: overall human development index of gender equality
- GII: capability and functionings measure (outcome measure) of gender equality
- SIGI: institutional measure of gender equality
- GGGI: capability measure of gender equality
- WEOI: resources & institutions measure (input measure) of women's development'

Van Staveren (2011) also develops a set of three decision trees for selecting an appropriate gender index (see pp. 29-31): 'The first decision is about general measurement features, such as years, countries, and compensation of female disadvantage with male disadvantage. The second decision is about statistical methodology, involving weights, standardization and aggregation. The third decision concerns the theoretical foundation of the Capability Approach which helps to distinguish the indices substantially, along different stages of the human development process'.

Resources

van Staveren, I., 2011, 'To Measure is to Know? A Comparative Analysis of Gender Indices', Working Paper No. 2011-02, Institute of Social Studies, The Hague
http://www.indsocdev.org/resources/ISS-ISD%20Working%20Paper%202011-02.pdf

Gaye et al., 2010, 'Measuring Key Disparities in Human Development: The Gender Inequality Index', Human Development Research Paper 2010/46, UNDP
http://origin-hdr.undp.org/es/informes/mundial/idh2010/trabajos/HDRP_2010_46.pdf

Permanyer, I., n. d., 'A critical assessment of UNDP.s Gender Inequality Index', Work in Progress, Center for Demographic Studies. Universitat Autònoma de Barcelona
http://www.ced.uab.es/articles/GII.pdf

UNDP, 2011c, 'Frequently Asked Questions about the Gender Inequality Index', UNDP
http://hdr.undp.org/en/media/FAQs_2011_GII.pdf

See also the following documents for discussion on **additional gender indices**; and reforms of indices:

Beneria, L., and Permanyer, I., 2010, 'The Measurement of Socio-economic Gender Inequality Revisited', Development and Change, vol. 41, no. 3, pp. 375-399
http://onlinelibrary.wiley.com/doi/10.1111/j.1467-7660.2010.01648.x/abstract

Abstract: The measurement of socio-economic gender inequality has not received much attention from the development literature despite its great relevance and important policy implications. In this article we present two new indices to measure gender inequalities that overcome some of the limitations inherent in the UNDP gender-related indices and other indices presented in the literature. The proposed new indices are conducive to exploring the extent to which gender gaps favour women and/or men, and to showing the contribution of the different subcomponents to the overall levels of gender inequality. Using UNDP data, our calculations suggest that the levels of gender inequality are mostly explained by differences in the earned-income subcomponent and that the average difference between women's and men's achievement levels has been reduced by 12 per cent during the period 1995–2005.

While focusing on the:
- **Gender Relative Status index** (GRS)
- **Women Disadvantage Index** (WDI)

The article also discusses:
- **Relative Status of Women Index** – Dijkstra and Hammer (2000)
- **African Gender and Development Index** - UNECA (2004)
- **Gender Equality Index** - Social Watch (2005)

Klasen, S. and Schüler, D., 2011, 'Reforming the Gender-Related Development Index and the Gender Empowerment Measure: Implementing Some Specific Proposals', Feminist Economics, vol. 17, no. 1, pp. 1-30
http://www.tandfonline.com/doi/abs/10.1080/13545701.2010.541860

Since their inception in 1995, the United Nations Development Programme (UNDP)'s Gender-Related Development Index (GDI) and Gender Empowerment Measure (GEM) have been criticized on conceptual and empirical grounds. In 2005–6, the UNDP's Human Development Report Office undertook a review of these indicators and suggested some modifications. This study extends this work by adjusting the recommendations, making concrete proposals for two gender-related indicators, and presenting illustrative results for these proposed measures. These new measures include the calculation of a male and female Human Development Index (HDI), as well as a gender gap measure (GGM) to replace the GDI as a measure of gender inequality. The study also proposes and implements several modifications and simplifications to the GEM. With these adjustments, a number of Sub-Saharan countries now rank much higher, countries in the Middle East have lower scores in both measures, and some European countries fare notably worse in the revised GEM.

Part 2: Indices incorporating measures of subjective wellbeing

'Subjective wellbeing' involves a multi-dimensional evaluation of life. Measures of subjective wellbeing comprise two key components (see Stutzer and Frey, 2010; Kahneman and Krueger, 2006; Conceição and Bandura, n.d.; Commission report, 2009):

1. Cognition: the evaluative or judgmental component of wellbeing, usually assessed by life satisfaction
2. Affect: the pleasure-pain component of wellbeing, usually assessed by emotions and moods involving both levels of subjective wellbeing and the duration in specific mental states

Life satisfaction, affect or happiness are measured through various methods, each of which views the theoretical notion of individual welfare from a different perspective. These include (see Stutzer and Frey, forthcoming 2012; Frey and Stutzer, 2010: 683):

- Representative surveys, which ask people about their satisfaction with life, positive and negative affect
- Experience sampling method, which collects information about individuals' actual experiences in real time in their natural environments
- Day reconstruction method, which asks people to reflect on how satisfied they felt at various times during the day
- U-index, which is related to the day reconstruction method and asks about the fraction of time spent experiencing predominantly unpleasant affects

Most of the empirical work that has been undertaken on subjective wellbeing research in economics has relied on representative, large scale sampling of individual global evaluations of life satisfaction. These measures are considered to be a usual proxy measure for individual measures since they combine cognitive judgment and affective state (Stutzer and Frey, 2010).

The following is a brief general discussion on some strengths and weaknesses of measuring subjective wellbeing that can be applicable to the specific indices discussed in this part of the report.

Strengths

- Incorporates a range of missing dimensions: Measures of subjective wellbeing provide a complementary approach to traditional welfare measures that focus on individual income or gross national product per capita. Reports on life satisfaction can provide a useful summary of the different components of people's capabilities (Deaton, 2008). Subjective wellbeing measures also allow for examination of the relationship between individual wellbeing and various economic and social conditions, such as income, unemployment and inequality. Economic activities are seen not as ends in themselves but as valuable only to the extent that they contribute to life satisfaction and happiness (Stutzer and Frey, 2010).
- Inclusivity: Measures of subjective wellbeing are often broad and all inclusive, which makes it an appropriate empirical approximation of individual welfare (Stutzer and Frey, 2010).

Key Critiques/Weaknesses

- Measurement difficulties – personal differences: A key difficulty with using data on subjective wellbeing is that individuals may interpret and use response categories differently. For example, 4 on scale measuring the intensity of a particular emotion for individual A may be the equivalent of 6 on the scale for individual B (Kahneman and Krueger, 2006). Some thus argue that it is not possible to compare utility levels of different persons (see Stutzer and Frey, 2010); whereas Kahneman (2000) finds that there is evidence of 'interpersonal convergence in ranking of pleasure and pain (cited in Stutzer and Frey, 2010: 685). Further, 'people may adapt to misery and hardship, and cease to see it for what it is. People do not necessarily perceive the constraints caused by their lack of freedom'. This can skew results (Deaton, 2008: 69)

- Measurement difficulties – contextual influences and priming: Global self reports, which are the key instruments used thus far in measuring subjective wellbeing, can be influenced by the immediate context in which questions are asked and by comparisons with past experiences and other people (Blanchflower, 2009; Stutzer and Frey, 2010; Bates, 2009). Current moods can be affected by earlier questions on a survey (in some cases that bring to mind a past experience), an issue referred to as 'priming'. The order of survey questions thus can influence reported subjective wellbeing, which can result in measurement errors (Stutzer and Frey, 2010; Bates, 2009). Sgroi et al., (2010) argue instead that subjects appear to be capable of distinguishing between happiness or life satisfaction and their short-run mood (that might be generated by the priming effect).

- Measurement difficulties – causality: Analysis of data from subjective wellbeing poll answers may confuse causality. Kenny (2011: 8) argues for example that 'Many of the independent variables we put in a happiness regression may not be truly independent—including income [or] number of friends, marital status, or (potentially) even being part of a religious community. In these cases, naturally happy people might be at a distinct advantage, finding it easier to make friends or find a mate, potentially even to find spiritual meaning'.

The rest of this part of the report will provide an overview of key indices and approaches that incorporate measures of subjective wellbeing: Gross National Happiness (GNH) – Bhutan, the OECD's Better Life Index, Gallup's World Poll, the U-Index and the HMG's Office of National Statistic's recent work on wellbeing. Given the recent introduction of most of these indices, there is limited literature on these indices. Further, much of the literature that does exist at this stage is descriptive rather than evaluative.

Resources

Blanchflower, D. G., 2009, 'International Evidence on Wellbeing', in Measuring the Subjective Wellbeing of Nations, ed. A. Krueger, NBER and University of Chicago Press, Chicago, pp. 155–226 http://www.nber.org/chapters/c5059.pdf

Conceição, P. and Bandura, R., n.d., 'Measuring Subjective Wellbeing: A Summary Review of the Literature' http://www.undp.org/developmentstudies/docs/subjective_wellbeing_conceicao_bandura.pdf

Frey, B. S. and Stutzer, A., forthcoming 2012, 'The Use of Happiness Research for Public Policy', Social Choice and Welfare

Kahneman, D. and Krueger, A. B., 2006, 'Developments in the Measurement of Subjective Well-Being', Journal of Economic Perspectives, vol. 20, no. 1, pp. 3-24 http://www.krueger.princeton.edu/PDF%20of%20Kahneman%20Krueger%20paper.pdf

Kenny, C., 2011, 'Bentham from the Crypt Once More: Politicians in Pursuit of Happiness', Centre for Global Development, Washington, DC
http://www.cgdev.org/content/publications/detail/1425209

Sgroi, D., Proto, E., Oswald, A. J. and Dobson, A., 2010, 'Priming and the Reliability of Subjective Well-being Measures', Working Paper. Department of Economics, University of Warwick
http://www2.warwick.ac.uk/fac/soc/economics/research/workingpapers/2010/twerp_935.pdf

Stutzer, A. and Frey, B.S., 2010, 'Recent Advances in the Economics of Individual Subjective Well-Being', Social Research, vol. 77, no. 2, pp. 679-714
http://socialresearch.metapress.com/app/home/contribution.asp?referrer=parent&backto=issue,13,15;journal,5,38;linkingpublicationresults,1:119739,1

7. Gross National Happiness - Bhutan

The concept of Gross National Happiness was first introduced in 1972 by H.M. Jigme Singye Wangchuck, the 4th King of Bhutan. It has provided a guiding philosophy for the absolute monarchy based on four pillars: equitable economic development; environmental preservation; cultural resilience; and good governance (Braun, 2009).

The Gross National Happiness (GNH) Index was released in November 2008. The first GNH survey was conducted in late 2007 and the subsequent one in 2010. The Index incorporates nine dimensions (see Bates, 2009; Braun, 2009; Alkire et al., 2008); and each dimension incorporates various indicators (see Braun, 2009):

- Psychological wellbeing: covers general psychological distress indicators, emotional balance indicators, and spirituality indicators. 'Elements like the prevalence rates of negative emotions (jealousy, frustration, selfishness) and positive emotions (generosity, compassion, calmness), the practice of spiritual activities like meditation and prayers, and overall life enjoyment are part of this domain' (Braun, 2009: 15).
- Time use: explores whether respondents feel they have sufficient time for various non-work related activities. It emphasises the value of non-work time for happiness and overall quality of life.
- Community vitality: looks at the vitality of relationships, safety in home and community, reciprocity, trust, social support, socialisation, and kinship density.
- Culture: considers the diversity and resilience of cultural traditions through dialect use, traditional sports, community festivals, artisan skill, value transmission, and basic precept.
- Health: covers health status, health knowledge and barriers to health.
- Education: looks at educational attainment, Dzongkha language, folk, and historical literacy.
- Ecological diversity: looks at ecological degradation, ecological knowledge, and afforestation. It focuses on perpetual data on ecology.
- Living standard: covers the basic economic status of people. Indicators assess levels of income at the individual and household level, housing and home ownership, food security, and economic hardship. Hardship incorporates factors such as the inability to repair households and the purchase of second-hand clothing.
- Governance: looks at government performance, freedom, and institutional trust. It evaluates how people perceive various government functions in terms of their efficacy, honesty and quality.

The nine dimensions include both objective and subjective measures of wellbeing. **The dimensions are equally weighted** as 'each dimension is considered to be relatively equal in terms of equal intrinsic importance as a component of gross national happiness' (Ura 2008, cited in Bates, 2009: 12). **A person who has achieved sufficiency in all 9 dimensions is considered happy.**

The method of construction of the GNH index is an **adaptation of the methodology developed by Alkire and Foster in their research on multidimensional aspects of poverty**. There are two key components: identification and aggregation (see Alkire et al., 2008; Bates, 2009; Braun, 2009).

- Identification: this involves **determining whether each person has sufficient achievements ('attained sufficiency') in each of the nine dimensions** to be considered 'happy'. Each dimension is given a 'suffiency cutoff', similar to a poverty line. The presumption is that beyond a certain point, it is not necessary to continue to add higher achievements to the quality of life (Alkire et al., 2009; Braun, 2009).
- The value of each indicator in which a household attains sufficiency or above sufficiency is given a 0; and 'all achievements that are less than sufficient are replaced by the distances from the cutoffs. It is calculated by subtracting the actual achievement from the sufficiency cutoffs, and that difference is divided by the sufficiency cutoff itself' (Braun, 2009: 121). The index thus gives greater weight to large deficits in any dimension than to small deficits in several dimensions (Bates, 2009). Any shortfall from sufficiency that any person experiences in any indicator within any dimension is considered to lower GNH.
- Aggregation*: this involves **aggregating the data of the population into a decomposable measure that is sensitive to the depth and severity of achievements**. This involves first identifying the shortfalls from gross national happiness and calculating the squared distances from the cutoffs. The resulting measure is the GNH' (Braun, 2009, 121). It is a number between 0 and 1, with 1 being the highest possible value of the index (Braun, 2009).

The following are the four key steps to determining the GNH Index (see Braun, 2009: 122-124)

- Step 1: Apply sufficiency cutoff to obtain insufficiency headcounts
  A person is insufficient if in a given indicator, the achievement is less than the respective cutoff.

- Step 2: Calculation of distance from cutoff
  The distances from cutoffs are calculated for the entries of persons who are insufficient (denoted by 1) by using the following formula:
  - For variables where minimum are zeros such as voluntary days and amount donated, distance from cutoff is calculated by (sufficiency cutoff-actual)/ (sufficiency cutoff).
  - For variables where minimum is one, distance from cutoff is calculated by (sufficiency cutoff-actual) / (sufficiency cutoff) - (one).

- Step 3: Squaring distance from the cutoff
  In order to give a greater weight to low achievements, and place a stronger value on equality, the distances from the cutoffs of each indicator may also be squared prior to aggregation to emphasize the severity of insufficiency.

- Step 4: Compute the GNH Index
  Step 4a: GNH Index = 1- Squared Distance from Cutoff
  Step 4b: GNH Index = Average (1- squared distance from cutoff) or

1-Average squared distance from cutoff

* For a more detailed explanation of aggregation and the methodology of the GNH Index, see Alkire at al. (2008), pp. 5-7

Strengths

- Incorporates important dimensions: Although some may consider the GNH to be a complicated and complex index, the incorporation of psychological wellbeing and the cultural and relational characteristics of the communities concerned can be essential to poverty reduction strategies. Addressing cultural practices can be instrumental to cost-effective responses to poverty. In addition, in some contexts, a minor advance in health, education or living standards may be associated with a significant decline in community vitality, culture, or psychological wellbeing. Such declines would not be captured in standard poverty indices (Alkire et al., 2008).
- Contributes to positive state-citizen relations: 'Gross National Happiness seems to promote democracy in that it facilitates the process of citizens voicing their opinions on various dimensions of their lives to the Bhutanese government. The GNH survey and the index that the CBS constructs from it open a channel of communication between the government and society at large' (Braun, 2009: 35).
- Contributes to effective policy-making and outcomes: The GNH index 'reduces the disconnect between what individuals consider important for wellbeing at the individual level and what the government considers important for policymaking' (Braun, 2009: 30). The GNH illuminates information on essential issues in essential areas of Bhutan, which an index like GDP would not reveal (Braun, 2009). The Centre of Bhutan has also developed a screening tool to promote accountability in policy-making. It would allow for all policy measures in the future to be scrutinised based on whether they raise the population's GNH (Kroll, 2011).
- Allows for disaggregation and tracking changes: The methodology adopted by the GNH index allows it to be decomposed in various ways. It can identify, for example, which dimensions show the highest shortfalls for particular regions or language groups (Bates, 2009). In addition, it is also possible to break down the index to identify how achievements in each of the nine dimensions contribute to or take away from GNH (Braun, 2009). This allows for better targeting and for tracking changes over time (Ura 2008, cited in Bates, 2009).

Key Critiques/Weaknesses

- Value judgments: The 'sufficiency cutoff' adopted for each dimension is determined by the Centre for Bhutan Studies. This cutoff, which is set higher than the poverty live, is a value judgment. Fishman (2009) finds the incorporation of such a value judgment in an index relied on by government to be problematic and to undermine the free market: 'When the Bhutanese government is including, for example, hours of sleep in its index, and considers any amount lesser than a threshold of 7 hours, say, insufficient, is it not dictating and defining what a good life is? This seems like a very treacherous path to take' (Fishman, 2009: 184).
- Too subjective: The GNH has been critiqued for being too subjective and unable to provide proper guidance (Braun, 2009). In addition, subjective dimensions and indicators could result in undesirable implications: for example, 'Should courts award lower compensation to victims of accidents who can more readily adapt to disabilities sustained, and higher damages to those who cannot adapt so easily?' (Frey and Stutzer 2007, cited in Bates, 2009: 3). Braun (2009) argues, however, that subjective measures have been operationalised in the past few decades into statistically sound metrics.

Resources

Alkire, S., Santos, M. E. and Ura, K., 2008, 'Gross National Happiness and Poverty in Bhutan: Applying the GNH Index Methodology to Explore Poverty', Oxford Poverty & Human Development Initiative, University of Oxford
http://www.ophi.org.uk/wp-content/uploads/OPHI-RP-4a.pdf?cda6c1

Bates, W., 2009, 'Gross National Happiness', Asian-Pacific Economic Literature, vol. 23, no. 2, pp. 1-16
http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8411.2009.01235.x/full

Braun, A. A., 2009, 'Gross National Happiness in Bhutan: A Living Example of an Alternative Approach to Progress', Wharton International Research Experience
http://www.schoolforwellbeing.org/download/GNH%20Paper%20Final.pdf

Fishman, R. N., 2010, 'Gross National Happiness – A Real Alternative or a Romantic wish? Impressions from the Fourth International Conference on Gross National Happiness in Bhutan', Consilience: The Journal of Sustainable Development, vol. 3, no. 1, pp. 179-186
http://journals.cdrs.columbia.edu/consilience/index.php/consilience/article/view/124/39

Kroll, C., 2011, 'Measuring Progress and Well-Being : Achievements and Challenges of a New Global Movement', friedrich ebert stiftung, Berlin
http://library.fes.de/pdf-files/id/ipa/08509.pdf

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8. OECD Better Life Index

The OECD Better Life Index, launched in 2011, is an interactive online tool that allows users to visualise and compare key dimensions that contribute to wellbeing in OECD countries. The 11 dimensions and corresponding indicators are:

- Housing: home ownership; dwellings w/o basic facilities; rooms per person
- Income: household net-adjusted disposable income; household financial wealth
- Jobs: employment rate; long-term unemployment rate
- Community: quality of support network
- Education: educational attainment; student reading skills
- Environment: air pollution
- Governance: voter turnout; consultation on rule-making
- Health: life expectancy; self-reported health
- Life satisfaction: measures how people evaluate their life as a whole rather than their current feelings. It captures a reflective assessment of which life circumstances and conditions are important for subjective well-being.
- Safety: assault rate; homicide rate
- Work-life balance: employment rate of women with children; employees working long hours; time devoted to leisure and personal care

Measuring feelings under life satisfaction can be very subjective. It is considered, however, to be a useful complement to more objective data when comparing quality of life across countries. The **data**

can provide a personal evaluation of an individual's health, education, income, personal fulfilment and social conditions. Surveys, in particular, are used to measure life satisfaction and happiness; and to determine which experiences in everyday life are perceived as either positive or negative (OECD website).

The Index does not attempt to weight dimensions and indicators. Instead the **user chooses the weight that each dimension should get** based on personal preferences. The Index then demonstrates how countries perform according to the importance that the user gives to each dimension. The **performance of countries is demonstrated through an interactive visualisation**: each country is represented by a flower, of which each petal corresponds to a dimension. The length of the petal represents the country's score for that dimension while the width stands for the importance assigned by the user. Each dimension can thus be examined separately and compared between countries by looking at the petal lengths. The weights can be changed in real time, causing the flowers to grow or shrink (OECD Better Life Index, 2011; Cukier, 2011; Sharpe and Anders, 2011). A database of people's valuations of the Better Life is being developed by the OECD (Sharpe and Anders, 2011).

The Country view on the site provides information for all 11 dimensions for a given country along with bar groups that compares the country's performance to others; and detailed background information and explanations to the according statistics (OECD Better Life Index, 2011).

Strengths

- Representation of individual/societal preferences: User-weighting allows each individual to obtain index values based on their personal valuations, rather than having weights dictated and determined by policy-makers. Such judgments by policy-makers may not reflect the views of society (Sharpe and Anders, 2011).
- Citizen participation: The ability of citizens to understand how the economy functions is considered important to a democracy. However, citizens often have only vague notions of the state of their economy as the traditional way in which economic indicators are communicated are not very efficient. The use of very high numbers often lack meaning. The Better Life Index provides instead a user-friendly way to engage citizens with economics and other aspects of wellbeing (Cukier, 2011). The Index can thus contribute to bringing debates on these issues to a broader segment of the population (Kroll, 2011).
- Understanding of cross-country differences: The Country view, which provides information and explanations, helps improve understanding of the reasons behind country performances in the different areas (OECD Better Life Index, 2011).

Key Critiques/Weaknesses

- Focus on developed countries: The OECD Better Life Index is focused on the concerns of developed economics, rather than on various degrees of poverty, which are of concern for the MPI, for example (Coicaud and Zhang, 2011). Miller (2011) argues that while OECD Index 'might be helpful for members of the cosmopolitan elite facing the terrible burden of deciding which of the many places in which they might choose to live is most desirable, it is going to be of little use in constructing a currency of global justice' (Miller, 2011: 169).
- Lack of guidance for policies: The fact that the index provides for user-weighting can also has a negative implication. Sharpe and Anders (2011) argue that if there is no agreed upon medium for the determination of the results, than the index cannot be useful in policy-making (Sharpe and

Anders, 2011). They find that the best solution to the issue of weighting for a summary index is to obtain a large, representative sample of the population being observed.

- Measurement issues: While attempts by the OECD to create a database of peoples' valuations of the Better Life Index can provide a useful survey of peoples' weight, there are concerns that it will be subject to a large bias. First, it will not be a representative global sample. Second, it is unclear how the raw data on the valuations of each individual should be weighted. If it is done by the population of each country, then the results could be skewed in favour of the more populous nations (Sharpe and Anders, 2011).

Resources

Coicaud, J.M. and Zhang, J., 2011, 'The OECD as a Global Data Collection and Policy Analysis Organization: Some Strengths and Weaknesses', Global Policy, vol. 2, no. 3, pp. 312-317
http://onlinelibrary.wiley.com/doi/10.1111/j.1758-5899.2011.00114.x/full

Cukier, J., 2011, 'Can Data Visualization Help Build Democracy?', Crossroads, The ACM Magazine for Students - CS in Service of Democracy archive, vol. 18, no. 2, pp. 26-30
http://dl.acm.org/citation.cfm?id=2043248

Miller, D., 2011, 'On Nationality and Global Equality: A Reply to Holtug', Ethics & Global Politics, vol. 4, no. 3, pp. 165-171
http://www.ethicsandglobalpolitics.net/index.php/egp/article/view/8489/11226

'OECD Better Life Index: Comparing the Well-Being of Countries by Flowers', 24 May 2011
http://infosthetics.com/archives/2011/05/oecd_better_life_index_comparing_the_national_well-being_by_flowers.html

Sharpe, A. and Anders, B., 2011, 'The Weighting Issues in Composite Indicators: The Experience of the Index of Economic Well-Being', Paper Presented to the International Statistical Institute Conference, August 21-26, Dublin
http://www.starse.it/materiali/Eventi/Sharpe_STS045.pdf

OECD Better Life Index website: http://www.oecdbetterlifeindex.org

9. Gallup World Poll

The Gallup World Poll (GWP) is a world wide survey programme. It was first run in 2006, using samples of people in 132 countries and covered various aspects of wellbeing, including an overall measure of life satisfaction (Deaton, 2008). Surveys have continued to be collected for 155 countries, across the years 2005-2010, **aimed at representing 95% of the world's population** (Tay and Diener, 2011: 356). The poll comprises of various questions asked under each of these dimensions:

- Business and economics
- Citizen engagement
- Communications and technology
- Education and families
- Environment and energy
- Food and shelter

- Government and politics
- Health
- Law and order
- Religion and ethics
- Social issues
- Wellbeing (life satisfaction)
- Work

The questions in these areas address 6 needs (Tay and Diener, 2011: 355; see also Diener et al., 2010):

- Basic needs for food and shelter: satisfied when in the past 12 months a respondent (a) had enough money for food, (b) had enough money for shelter, and (c) did not go hungry.
- Safety and security: satisfied when individuals (a) felt safe walking alone, (b) did not have money and/or property stolen during the past 12 months (from either them or their family members), and (c) were not assaulted during the past 12 months.
- Social support and love: met when the respondents indicated that they (a) experienced love yesterday and (b) have others they can count on for help in an emergency.
- Feeling respected and pride in activities: met for respondents who (a) felt they were treated with respect and (b) were proud of something.
- Mastery: met when an individual (a) had the experience of learning something and (b) did what she or he does best at work.
- Self-direction and autonomy: whether individuals could (a) choose how their time was spent and (b) whether they experienced freedom in life.

'**Needs are operationally defined as met (1) or unmet (0) through combinations of surveyed items, all of which were answered on a dichotomous yes–no scale**. A need was scored as fulfilled (1) only if all items pertaining to that need were answered affirmatively and otherwise was scored as unfulfilled (0)' (Tay and Diener, 2011: 356).

Three types of subjective **wellbeing tools** are adopted in the survey – **global life evaluation, positive feelings, and negative feelings**:

- The global life evaluation measure (Cantril's Self Anchoring Striving Scale): this asks respondent 'to evaluate their current life on a ladder scale, with steps ranging from 0 (worst possible life) to 10 (best possible life)' (Tay and Diener, 2011: 356; see also Deaton, 2008). This allows for comparisons alongside other dimensions of wellbeing explored in the survey (Gallup website).
- Questions above positive feelings and negative feelings: this assesses the experience of positive and negative emotions experienced the previous day, on a dichotomous scale format (1 –yes, 0 – no). Positive items included 'smile/laugh' and negative items included 'worry' and 'sadness'. These items are then aggregated (Tay and Diener, 2011; Diener et al., 2010).

Strengths

- Broad-based and comparative: No previous poll has provided national samples from so many countries, particularly poor countries (Deaton, 2008). The poll reaches the vast majority of the world's adult population and thus allows for generalizable inferences about humanity (Tay and Diener, 2011). In addition, since the same questionnaire is used in all countries, it is possible to engage in cross-country comparisons (Deaton, 2008).

- Representation of individual perceptions: The adoption of the Cantril Scale allows each respondent to self-anchor self-anchor themselves based on their perspective of the ideal life (Bjørnskov, 2010)
- Measurement issues – reducing the influence of past experiences: The advantage of using measures of emotions based on the previous day is that it reduces the degree of memory bias. Reports are thus more likely to be based on actual experience (Diener et al., 2010).

Key Critiques/Weaknesses

- Constraints on comparisons: While the Cantril Scale allows for personalisation, this could also be problematic. 'Anchoring individual responses in the individuals' own hopes for her life may mean that the answers are not fully comparable across individuals, and less so across countries for which external circumstances can affect both actual satisfaction and the hopes and expectations of the population at large. To the extent that such hopes and expectations increase with the general affluence of countries, it also implies that answers are not fully comparable over time' (Bjørnskov, 2010: 44)
- Measurement issues: The Gallup World Poll has been subject to the same critics made at the start of this section on subjective wellbeing concerning measurement difficulties and the influence of personal differences, contextual influences and priming (see Deaton, 2008; and Bjørnskov, 2010). In addition, although reliance on the measure of emotions based on the previous day can be beneficial in terms of reducing memory bias, it may be problematic to anchor reports on a single day. This could introduce random error into the measures as a single day's feelings is likely to be influenced by short-term fluctuations (Diener et al., 2010)

Resources

Bjørnskov, C., 2010, 'How Comparable are the Gallup World Poll Life Satisfaction Data?' Journal of Happiness Studies, vol. 11, no. 1, pp. 41-60.
http://www.springerlink.com/content/b0w37vp828627m5n/

Deaton, A., 2008, 'Income, Health, and Well-being Around the World: Evidence from the Gallup World Poll', Journal of Economic Perspectives, vol. 22, no. 2, pp. 53–72.
http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.22.2.53

Deiner, E. Ng, W., Harter, J. and Arora, R., 2010, 'Wealth and Happiness Across the World: Material Prosperity Predicts Life Evaluation, Whereas Psychosocial Prosperity Predicts Positive Feeling', Journal of Personality and Social Psychology, vol. 99, no. 1, pp. 52–61
http://www.ncbi.nlm.nih.gov/pubmed/20565185

Gallup Poll, World Poll Questions
http://media.gallup.com/dataviz/www/WP_Questions_WHITE.pdf

Tay, L. and Diener, E., 2011, 'Needs and Subjective Well-Being Around the World', Journal of Personality & Social Psychology, vol. 101, no. 2, pp. 354-365
http://www.apa.org/pubs/journals/releases/psp-101-2-354.pdf

The U-Index is a **duration measure** that measures 'the proportion of time an individual spends in an unpleasant state'. It is an 'ordinal measure *at the level of feelings'* (Kahneman and Krueger, 2006: 19).

The first step in calculating the U-index is to **determine whether an episode is unpleasant or pleasant**. An episode is classified as a unpleasant if 'the most intense feeling reported for that episode is a negative one—that is, if the highest rating on any of the negative affect dimensions is strictly greater than the maximum of rating of the positive affect dimensions' (Kahneman and Krueger, 2006: 19). U equals 1 for an episode if max (negative emotions) › max (positive emotions), and 0 otherwise (Krueger et al., 2009: 11). This kind of classification of episodes relies on an ordinal ranking of feelings within each episode (Kahneman and Krueger, 2006). Positive feelings include 'happy', 'enjoying myself', 'friendly'; and negative feelings include 'depressed', 'angry', 'frustrated'.

Once episodes are categorized as unpleasant or pleasant, **the U-index is defined as the fraction of an individual's waking time that is spent in an unpleasant state**: 'The U-index can be computed for each individual (what proportion of the time is this person in an unpleasant emotional state?) and averaged over a sample of individuals. The same index can also be used to describe situations (what proportion of the time that people spend commuting is experienced as unpleasant?)' (Kahneman and Krueger, 2006: 20).

Strengths

- Overcomes measurement issues re: personal, cultural differences: One of the commonly cited challenges with using data on subjective wellbeing is that individuals may interpret and use the response categories differently. Although survey researchers aim to anchor response categories to words with a common and clear meaning, there is no guarantee that respondents will use the scales comparably (Kahneman and Krueger, 2006). Cultural differences may also be an influence. For example, Americans seem to be more emphatic when reporting their wellbeing than the French. The U-index by depending on within-subject ordinal rankings of emotions and applying a dichotomous measure helps to overcome such individual and cultural differences. It no longer matters whether some individuals are more or less empathetic than others, so long as their tendency is consistently applied to positive and negative emotions (Krueger et al., 2009).
- Cardinal properties: Since the U-index is aggregated based on time, 'it takes on useful cardinal properties. Like the poverty rate, for example, one could compute that the U-index is *X* percent lower for one group than another or that it has fallen by *Y* percent over time. Such comparisons cannot be done for net affect data, which, at best, satisfies the requirements for an interval scale' (Kahneman and Krueger, 2006: 20).
- Comparative: The time allocation across activities for one country can be used to weight the U-index for the other country, creating a 'synthetic' U-index. This allows for an understanding, for example, of how the average French woman would feel if she spent her time in her usual way, but experienced activities in the same way as the average American woman (Krueger et al., 2009: 14).
- Psychological attributes: Since the majority of people have a predominant emotional state during most of the time, the selection of a negative feeling as more intense than all positive ones for an episode is likely to be a deliberate and mindful choice (Kahneman and Krueger, 2006).

Key Critiques/Weaknesses

- Interpretation issues: 'Interpreting the U-index (or other measures of affective experience) during specific activities is potentially problematic for three reasons. First, the U-index could change if people allocate more or less time to an activity. Second, it is plausible that those who participate in an activity find it more rewarding than those who choose not to participate in that activity. Third, it is possible that individuals with certain personality traits (e.g., cheerful) participate in different activities than those with different personality traits (e.g., depression). All of these considerations pose a challenge for the counterfactual calculations', and such calculations are best seen as suggestive (Krueger at al., 2009: 17).
- Limited coverage: The method adopted by the U-index is not suitable for large scale surveys; as such it is not available for many countries. A good alternative is the Affect Balance Score, based on responses to yesterday's affect in the Gallup World Poll (Ruut Veenhoven comments).
- Limited understanding of cross-country differences: The U-index argues that humans respond to an unpleasant experience in a similar manner, although some may do so more emphatically. The creation of a 'synthetic' U-index, as was done for the US and France, reduces the difference between national U-indices. However, the differences do not disappear. The index does not provide for any indications about why differences persist (e.g. why paid work seems to be a more unpleasant experience than in France) (Bittman, 2009).

Resources

Bittman, M., 2009, 'Comment: "Time Use and Subjective Well-being in France and the US"'
Social Indicators Research, vol. 93, no. 1, pp. 33-35
http://www.springerlink.com/content/y05464456565l777/

Kahneman, D. and Krueger, A. B., 2006, 'Developments in the Measurement of Subjective Well-Being', Journal of Economic Perspectives, vol. 20, no. 1, pp. 3-24
http://www.krueger.princeton.edu/PDF%20of%20Kahneman%20Krueger%20paper.pdf

Kreuger, A. B. et al., 2009, 'Time Use and Subjective Well-Being in France and the U.S.', Social Indicators Research, vol. 93, no. 1, pp. 7-18
http://www.springerlink.com/content/e306mx0130380881/

11. HMG's ONS work on wellbeing

The UK's Office of National Statistics launched a programme in 2010 on measuring national wellbeing. The aim of the programme is to develop and publish an accepted and trusted set of National Statistics which help people to understand and monitor national wellbeing. As part of this, a national debate on wellbeing was held which ended on 15 April 2011.

Some common themes have been identified that should inform the framework to understand national wellbeing (see Matheson, 2011: 8):

- Individual well-being is central to an understanding of national wellbeing. It includes objective circumstance, for example an individual's employment status; and subjective wellbeing which includes the individual's experiences and feelings.

- National wellbeing is affected by how these circumstances, experiences and feelings are distributed across society, and how well current levels of wellbeing can be sustained into the future or between generations.
- A set of domains, such as health and education, will need to be established to help capture the individual measures which together determine national wellbeing.
- Local factors are also relevant to wellbeing, e.g. access to green spaces and strength of community involvement.

One of the first steps taken by the initiative was to establish as regular practice the comprehensive measurement by the ONS of the country's subjective wellbeing, in order to supplement existing objective measures of quality of life with direct information on how people are doing and how they evaluate their life circumstances. Toward this end, the Integrated Household Survey from April 2011 included four questions asking respondents to assess their own wellbeing:

- Overall, how satisfied are you with your life nowadays?
- Overall, how happy did you feel yesterday?
- Overall, how anxious did you feel yesterday?
- Overall, to what extent do you feel the things you do in your life are worthwhile?

Each is measured on a scale from 0 to 10. These questions will be asked of around 200,000 adults (aged 16 and over) each year. The questions will be tested and refined. Themes that emerge from the national debate will also be considered (Matheson, 2011: 17).

Measures of economic wellbeing and sustainability are also being developed and will draw on a wide range of previous work and existing sources. Sources include the Equality Measurement Framework, Defra's Sustainable Development Indicators, measures used by the OECD, quality of life indicators being developed by Eurostat, all the measures suggested in the national debate, and other potential measures under development (Matheson, 2011).

The starting point for measuring the UK's economic wellbeing is the National Accounts. This has been built on by ONS with the extension of household income and consumption to reflect 'in kind' services provided by government, such as subsidised health care and educational services. ONS has also been monitoring financial wealth, information on environmental impact, and issues of fairness and equality through for example the Gini coefficient.

Defra has been conducting surveys on life satisfaction; and positive and negative feelings. Respondents are asked about their overall satisfaction with the following aspects of life (see Defra, 2011):

- Standard of living
- Health
- Day to day activities
- Control
- Relationships
- Achievement of goals
- Accommodation
- Community
- Local area
- Future financial security

- Leisure
- Where you live is a quiet environment

Respondents are asked about the frequency of positive feelings (*happy*; *energised*; *engaged with what they were doing*) and negative feelings (*depressed*; *lonely*; *everything was an effort*; *restless sleep*; *unsafe*) during the previous two weeks (Defra, 2011: 8).

Respondents are also asked how often in the previous two weeks they had engaged in four different positive activities: if they had *spent time with family*, or *spent time with friends*, and if they had been *involved in social activities in their local area*, or if they had been *involved with leisure or hobby activities* (Defra, 2011: 9).

Resources

Defra, 2011, 'Life satisfaction and other measures of well-being in England, 2007 to 2011'
www.defra.gov.uk/statistics/files/Statistical-Release-13-April-2011-wellbeing.pdf

Kroll, C., 2011, 'Measuring Progress and Well-Being : Achievements and Challenges of a New Global Movement', friedrich ebert stiftung, Berlin
http://library.fes.de/pdf-files/id/ipa/08509.pdf

Matheson, J., 2011, 'National Statistician's Reflections on the National Debate on Measuring National Well-being', Office for National Statistics, London
http://www.ons.gov.uk/ons/guide-method/user-guidance/well-being/wellbeing-knowledge-bank/understanding-wellbeing/measuring-what-matters--national-statistician-s-reflections-on-the-national-debate-on-measuring-national-well-being.pdf

Appendices

A. Tables of Indices

Table 1: Indices measuring multi-dimensional poverty and wellbeing – dimensions, indicators, methodology

	Human Development Index	Multidimensional Poverty Index	Indices of Social Development	Millennium Development Goals
Dimensions	3 dimensions: Health Knowledge Income Missing dimensions Absence of poverty, undernourishment and shelter Equity Political freedoms Human rights Sustainability Engagement in a community Social cohesion Happiness	3 dimensions: Health Education Standard of Living Missing dimensions /data (Alkire, 2007): Employment quality Agency and empowerment Physical safety The ability to go about without shame Psychological and subjective wellbeing	5 dimensions: Civic activism Clubs and associations Interpersonal safety and trust Inter-group cohesion Gender equity and non-discrimination against women	8 dimensions: Poverty and hunger Primary education Gender equality Child health Maternal health HIV/AIDs, malaria and other diseases Environmental sustainability Global partnership Missing dimensions /data (Alkire and Foster, 2009): Work (informal employment, quality of work) Safety from violence Agency and empowerment Discrimination and humiliation Psychological and subjective wellbeing
Indicators	4 indicators: Health: life expectancy at birth Knowledge: expected years of schooling; and mean years of prior schooling for adults aged 25 and older. Income: purchasing-power-adjusted per-capital Gross National Income (GNI).	10 indicators: Health: child mortality, nutrition Education: years of schooling, child school attendance Standard of living: electricity, drinking water, sanitation, flooring, cooking fuel, assets	The nature of the underlying indicators is varied, consisting of perceptions (e.g. of trust), recorded incidences (e.g. crime), and expert opinions (e.g. crime advisories) Civic activism: levels of civic activism and access to information. Clubs and associations: level of participation in voluntary activities conducted amongst individuals in the same locale	MDGs break down into 21 quantifiable targets that are measured by 60 indicators The targets involve: Poverty and hunger eradication: Halve poverty, and hunger; decent work for all Primary education: universal primary education Gender equality: eliminate gender

			Interpersonal safety and trust: norms of nonviolence between persons in society, crime Inter-group cohesion: extent or absence of routinized conflict between identity groups. Gender equity and non-discrimination against women: levels of discrimination occurring against women.	disparity in education Child health: reduce child mortality by two-thirds Maternal health: reduce maternal mortality ratio by three-quarters; universal access to reproductive health HIV/AIDs, malaria and other diseases: halt and begin to reverse spread of HIV/AIDs, and malaria and major diseases; universal access to AIDs treatment Environmental sustainability: reverse loss of resources; reduce biodiversity loss; halve proportion of population without sustainable access to safe drinking water and basic sanitation; improvement in slum dwellers' lives Global partnership: develop transparent trading and financial system; address special needs of least developed, and landlocked and small island countries; ease debt burdens; provide access to affordable drugs; access to new technologies
Methodology	Data is drawn from international data providers and national statistical agencies. The three dimensions are assigned equal weight. The first step in calculating the HDI is to create the dimension indices. Minimum and maximum values (goalposts) are set in order to transform the indicators into indices between 0 and 1. The subindices are calculated as follows:	Data is drawn from household surveys. The choice of dimensions, weights and dual cut-offs is not pre-determined. The MPI demonstrates the combination of deprivations that a household may experience at the same time. It adopts the mathematical structure proposed by Alkire and Foster, which involves an Adjusted Headcount Ratio (M_o).	Based on over 200 measures from 25 data sources. Method of aggregation involves a variant of the matching percentiles method. This approach converts a series of databases, each of which have different coverage, into one unified set that assigns scores or values (between 0 and 1) based on the ranking of each of the countries. The basic assumption is that for each of the dimensions of social development there is some latent	Data is compiled from international agencies (country offices), line ministry in the country and national statistical offices; and stored in the MDG Indicators database.

Dimension index = $$\frac{\text{actual value} - \text{min value}}{\text{max value} - \text{min value}}$$ The next step is to aggregate the subindices. The HDI is the geometric mean of the three dimension indices: $$\left(I_{Life}^{1/3} * I_{Education}^{1/3} * I_{Income}^{1/3}\right)$$	To identify who is poor among the population, a two-step procedure is applied using two different kinds of cutoffs. The first cutoff identifies all individuals who are deprived in any dimension; and the second cutoff identifies all individuals considered multidimensionally poor. A person is identified as poor if her weighted deprivation count is greater than or equal to the second cutoff. The MPI is the product of two numbers: the Headcount H or percentage of people who are poor, and the Average Intensity of deprivation A – which reflects the proportion of dimensions in which households are deprived. A household is considered multidimensionally poor if the weighted indicators in which the household is deprived add up to at least 33%.	value (Li) representing the objective level of that dimension in country i. Each of the available indicators yi represents, on a different functional transformation (f) and with varying degrees of measurement error εi, level Li such that: $$(yi) = f(Li) + \varepsilon i$$	

Table 2: Indices incorporating measures of subjective wellbeing – dimensions, indicators, methodology

	GNH - Bhutan	OECD 'Better Life' Index	Gallop World Poll	U-Index
Dimensions	9 dimensions: Psychological wellbeing Time use Community vitality Culture Health Education Environment Living standards Governance	11 dimensions: Housing Income Jobs Community Education Environment Governance Health Life satisfaction Safety Work-life balance	13 dimensions: Business and economics Citizen engagement Communications and technology Education and families Environment and energy Food and shelter Government and politics Health Law and order Religion and ethics Social issues	Measures the duration that an individual spends in an unpleasant state

			Wellbeing (life satisfaction) Work	
Indicators	Psychological wellbeing: general psychological distress indicators, emotional balance indicators, and spirituality indicators Time use: highlights the value of non-work time for happiness and overall quality of life Community vitality: family vitality, safety, reciprocity, trust, social support, socialization, and kinship density Cultural Diversity and Resilience: dialect use, traditional sports, community festivals, artisan skill, value transmission, and basic precept Health: health status, health knowledge, and barriers to health Education: educational attainment, Dzongkha language, folk, and historical literacy Ecological Diversity and Resilience: ecological degradation, ecological knowledge, and afforestation Living Standard: income, housing, food security, and hardship Governance: government performance, freedom, and institutional trust	Housing: home ownership; dwellings w/o basic facilities; rooms per person Income: household net-adjusted disposable income; household financial wealth Jobs: employment rate; long-term unemployment rate Community: quality of support network Education: educational attainment; student reading skills Environment: air pollution Governance: voter turnout; consultation on rule-making Health: life expectancy; self-reported health Life satisfaction: measures how people evaluate their life as a whole rather than their current feelings. It captures a reflective assessment of which life circumstances and conditions are important for subjective well-being. Safety: assault rate; homicide rate Work-life balance: employment rate of women with children; employees working long hours; time devoted to leisure and personal care	There are a long series of questions that are asked under each of these dimensions. Tay and Diener (2011) segment the poll into 6 core needs, with specific indicators: Basic needs for food and shelter: satisfied when in the past 12 months a respondent (a) had enough money for food, (b) had enough money for shelter, and (c) did not go hungry. Safety and security: satisfied when individuals (a) felt safe walking alone, (b) did not have money and/or property stolen during the past 12 months (from either them or their family members), and (c) were not assaulted during the past 12 months. Social support and love: met when the respondents indicated that they (a) experienced love yesterday and (b) have others they can count on for help in an emergency. Feeling respected and pride in activities: met for respondents who (a) felt they were treated with respect and (b) were proud of something. Mastery: met when an individual (a) had the experience of learning something and (b) did what she or	

			he does best at work. <u>Self-direction and autonomy</u>: whether individuals could (a) choose how their time was spent and (b) whether they experienced freedom in life.	
Methodology	Survey/questionnaire. Dimensions are equally weighted. Identification: sufficiency cutoffs are established for each of the nine dimensions. A person who has achieved the sufficiency cutoff in all nine domains is considered happy. Aggregation: after applying the sufficiency cutoffs to each of the nine domains, data is aggregated from each domain using a statistically sound method to come up with a number between 0 and 1 that is deemed the GNH index, with 1 being the highest possible value of the index. The construction of the index gives greater weight to large deficits in any dimension than to small deficits or shortfalls in several dimensions. This means that a large deficit in any particular dimension has a	Interactive visual, online tool. No established weights; user decides. Interactive visualizations reveal how countries perform according to one of the available 11 dimensions. Each country is represented by a flower, of which each petal corresponds to a unique dimension. The length of a petal represents a country's score for that dimension, while its width stands for the importance that the user assigns to that dimension. As an interactive visualization, weights could be changed in real time, causing the countries' flowers to smoothly grow or shrink.	Survey/questionnaire. Needs are operationally defined as met (1) or unmet (0) through combinations of surveyed items, all of which were answered on a dichotomous yes–no scale. Three types of subjective wellbeing tools are adopted in the survey – global life evaluation, positive feelings, and negative feelings: The global life evaluation measure (Cantril's Self Anchoring Striving Scale): this asks respondent 'to evaluate their current [and future] life on a ladder scale, with steps ranging from 0 (worst possible life) to 10 (best possible life)'. Questions above positive feelings and negative feelings: this assesses the experience of positive and negative emotions experienced o the previous day, on a dichotomous scale format (1 –yes, 0 – no).	The first step in calculating the U-index is to determine whether an episode is unpleasant or pleasant. U equals 1 for an episode if max (negative emotions) › max (positive emotions), and 0 otherwise. Once episodes are categorized as unpleasant or pleasant, the U-index is defined as the fraction of an individual's waking time that is spent in an unpleasant state.

	magnified negative impact on the GNH index. The shortfalls from gross national happiness are identified and the squared distances from the cutoffs calculated. The resulting measure is the GNH. *GNH = 1- Average squared distance from cutoff*		

Indices on Children

Moore, K. et al., 2008, 'A **Microdata Child Well-Being Index**: Conceptualization, Creation, and Findings', Child Indicators Research, vol. 1, no. 1, pp. 17-50
http://www.springerlink.com/content/a886380v072k1457/
Abstract: Over the past 30 years, a prominent stream of research has addressed the conceptualization and measurement of child well-being and the construction of child well-being indices. This paper extends this accumulating body of research in five ways. First, an index of child well-being for US children ages 6–11 is constructed using individual children (micro-data) as the unit of analysis rather than population based measures which have typically been used in the past. Second, the new index uses a recently developed US data source (National Survey of Children's Health) to incorporate far more measures related to child well-being (69) into an index than have been used in past efforts. Third, this research explicitly separates child outcome measures (measures of child well-being) from contextual measures (seen as measures of risk or inputs). Fourth, separate indices are developed for children age 6–11 and those aged 12–17. Fifth, analyses show that contextual indicators add significant albeit modest power over and above common demographic measures (age, gender, race/ethnicity) as predictors of individual differences in well-being among children.

Roelen, K. and Gassman, F., 2008, 'Measuring Child Poverty and Well-Being: A Literature Review', Working Paper Series No. 2008/WP001, Maastricht Graduate School of Governance
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1105652
Abstract: Due to the acknowledgment that children deserve special focus in poverty measurement, the measurement of child poverty and well-being has received increasing attention within the academic and policy arena. The dependence of children on their direct environment for the provision of basic needs, the child-specific requirements in terms of their basic needs and the request for specific information for the formulation of child-focused policies are important reasons calling for the development of child poverty approaches. A range of approaches has been developed in the last decade to meet the need for a measurement tool especially geared to capture children and internalize their specific needs. Each of these approaches differ with respect to their chosen identification mechanism, aggregation methodology and data requirements. Decisions made on all these elements involve a set of advantages and disadvantages and have consequences for the usefulness of the approach to serve a specific purpose or audience. This review provides a structural overview of the current state of literature on the measurement of child poverty and well-being. We conclude that there are no perfect approaches for the measurement of child poverty and that each approach is the result of a specific conceptual framework in accordance with the availability of resources.

Fernandes, L., Mendes, A. and Teixeira, A. A.C., 2011, 'A Review Essay on the Measurement of Child Well-Being'
Social Indicators Research
http://www.springerlink.com/content/j7p2u6m201535p4t/
Abstract: Research on indicators related to the state of child well-being is a growing field that has experienced several changes over time. The growing supply of data on children, as well as the need to facilitate conclusions and to track trends, has led researchers to develop a number of child well-being indexes. This paper critically reviews the most recent and relevant child well-being indexes, i.e., the **Index of Child and Youth Well-Being** in the United States, the **Child Well-being Index** for the European Union, the **Microdata Child Well-being Index**, and the **Deprivation Index**. The study

focuses primarily on the contributions and innovations the indexes have brought to the field, making a critical assessment of the methods used in the construction of the indexes and identifying their main limitations.

Kyrili, K. and McKinley, T., 2008, 'Identifying Global Trends in Child Poverty: Save the Children's New Child Development Index' Development Viewpoint, No. 21 December, 2008
http://eprints.soas.ac.uk/7331/1/DevelopmentViewpoint21.pdf

The **Child Development Index** is designed to be a simple, transparent and easily understandable index for global comparisons of progress across countries and regions. Hence, it is best suited for global advocacy and identifying broad policy priorities. More detailed analysis, based on a wider set of indicators, would be needed for specific policy implications at the country level. The index seeks to *directly* measure dimensions of child wellbeing. This approach led to choosing three key indicators. For health, the CDI includes the mortality rate of children who are under five years of age. For education, it includes the percentage of school-age children who are *not* enrolled in primary school. And for nutrition, it incorporates the percentage of children under five years of age who are underweight. Each indicator is expressed in deprivation form, i.e., as the lack of a basic human capability. The index does not include lack of household income as a barometer of deprivation because income is regarded as only an *indirect* means for achieving human wellbeing. The purpose of money is to purchase the *direct means*, such as food, clothing and energy.

Economic Wellbeing Indices

De Muro, P., Mazziotta, M., and Pareto, A., 2011, 'Composite Indices of Development and Poverty: An Application to MDGs', Social Indicators Research, vol. 104, no. 1, pp. 1-18
http://www.springerlink.com/content/w2u1716g482811vq/

Abstract: The measurement of development or poverty as multidimensional phenomena is very difficult because there are several theoretical, methodological and empirical problems involved. The literature of composite indicators offers a wide variety of aggregation methods, all with their pros and cons. In this paper, we propose a new, alternative composite index denoted as **MPI (Mazziotta-Pareto Index)** which, starting from a linear aggregation, introduces penalties for the countries or geographical areas with 'unbalanced' values of the indicators. As an example of application of the MPI, we consider a set of indicators in order to measure the Millennium Development Goals (MDGs) and we present a comparison between HDI (Human Development Index) methodology, HPI (Human Poverty Index) methodology and MPI.

Sharpe, A. and Andrews, B., 2011 'The Weighting Issues in Composite Indicators: The Experience of the Index of Economic Wellbeing', Paper Presented to the International Statistical Institute Conference, August 21-26, Dublin, Ireland
http://www.starse.it/materiali/Eventi/Sharpe_STS045.pdf

Abstract: **The Index of Economic Well-Being (IEWB)** has had an interesting journey through the weighting issue, having considered many different weighting options and having changed its method of aggregation of its components in the past. In the process, the IEWB has learned valuable lessons about the weighting of composite indicators. Indeed, the changes made by the IEWB are in line with work discussing the societal differences in valuations of indices. At the same time, the literature on the weighting of composite indicators is continually expanding. The authors explore a variety of possible weighting schemes for the IEWB under the guidance of the lessons already learned. Where possible, the history and structure of the IEWB will be applied to analyze the optimality of a particular method of weighting. The IEWB is adaptable and the application of various weighting techniques to this index will allow for a discussion of the suitability of these weighting techniques *in practice*.

Decanq, K. and Lugo, M.A., 2011, '**Inequality of Well-being**: A Multidimensional Approach, Economica

http://www.econ.kuleuven.be/public/ndaaf78/Decancq%20Lugo%202011.pdf

Abstract: An important aspect of the multidimensional well-being distribution of a society is the correlation between the different dimensions of well-being. We propose two indices for measuring inequality of multidimensional well-being, derived from two underlying social evaluation functions. These functions aggregate both across the dimensions of well-being and across individuals. The two social evaluation functions differ only with respect to the sequencing of aggregations. We believe that aggregating first across dimensions is more attractive since it allows the inequality index to depend on the correlation between the dimensions. We illustrate both indices using Russian household data between 1995 and 2005 for four dimensions of well-being: expenditure, health, schooling and housing quality. This illustrates the empirical impact of correlation-sensitivity on the obtained results.

Osberg, L. and Sharpe, A., 2009, 'An **Index of Labour Market Well-being** for OECD Countries', Centre for the Study of Living Standards, Ottawa

http://dspace.cigilibrary.org/jspui/bitstream/123456789/15311/1/An%20Index%20of%20Labour%20Market%20Well%20Being%20for%20OECD%20Countries.pdf?1

Summary: This report's objective is the construction of an index of labour market well-being that is capable of measuring the well-being that individuals in a given society at a given point in time can obtain through the labour market. Besides considering simply the average return from working, workers are also typically concerned with inequality in the distribution of earnings, as well as skills acquisition that affects future returns from working and the uncertainty surrounding these future returns due to, for example, the possibilities of job loss, injury and insufficient income in retirement. The index proposed and constructed here hence attempts to incorporate each of these aspects of labour market well-being. The Centre for the Study of Living Standards has developed an Index of Economic Well-being based on trends in consumption flows, stocks of wealth, inequality, and economic security.

Indices incorporating Subjective Wellbeing

Campus, A. and Porcu, M., 2010, 'Reconsidering the Well-being: the **Happy Planet Index** and the issue of Missing Data', Working Paper, Centro Richerche Economiche Nord Sud, Italy

http://crenos.unica.it/crenos/en/system/files/WP10-07.pdf

The main aim of this paper is to build up and to analyze a composite indicator, the Happy Planet Index (HPI), as an alternative measure to the Gross Domestic Product (GDP) in evaluating nations' well-being. HPI was firstly developed by the New Economic Foundation in July 2006 and it is the first well-being composite indicator that considers in its calculation a subjective measure of well-being: life satisfaction. This work updates the HPI for 178 countries using the most recent available datasets. Due to the lack of country data for some of the variables used to build up the HPI, it has been necessary to run some missing data estimation procedures. The results obtained show that no country manage to score high in terms of HPI because of countries' incapacity to maintain high living standards (expressed in terms of happy life years) and at the same time assure sustainability. Comparing HPI with GDP, no association between the resulting countries' classification was found, living proof that this indicator does not reflect the same reality that GDP illustrates.

Anderson, R., 2011, '**Good Societies Index** for the 20 Richest Societies', Revised 6/29/11 from a Presentation at the International Society for Quality of Life Studies Florence, Italy, July 23, 2009

http://ccare.stanford.edu/sites/default/files/goodsocieties.pdf

Thirty-two social Indicators were selected that reflect:

- the degree of social well-being and ill-being in affluent countries
- or whether the social institutions tend to reduce suffering or increase it

These 32 indicators fall into 8 Components (with sample indicators)
- Work & Income equality (Income equality/disparity)
- Child Well-Being (Often eating with parents)
- Safety (Few homicides)
- Health (Life expectancy)
- Non-Violence (Low arms exports)
- Integrity & Social Justice (Corruption-free organizations)
- Democracy & Freedom (Freedom of the Press)
- Compassion (Social expenditures, also hosting refugees)

Bjørnskov, C., Dreher, A., Fischer, J.A.V., 2010, **'Formal Institutions and Subjective Well-being**: Revisiting the Cross-country Evidence', European Journal of Political Economy, vol. 26, no. 4, pp. 419-430
http://www.sciencedirect.com/science/article/pii/S0176268010000078
Abstract: A long tradition in economics explores the association between the quality of formal institutions and economic performance. The literature on the relationship between such institutions and happiness is, however, rather limited, and inconclusive. In this paper, we revisit the findings from recent cross-country studies on the institution–happiness association. Our findings suggest that their conclusions are qualitatively rather insensitive to the specific measure of 'happiness' used, while the associations between formal institutions and subjective well-being differ among poor and rich countries. Separating different types of institutional quality, we find that in low-income countries the effects of economic–judicial institutions on happiness dominate those of political institutions, while analyses restricted to middle- and high-income countries show strong support for an additional beneficial effect of political institutions. Our results bear important implications that we discuss in the concluding section of the paper.

Bérenger, V. and Verdier-Chouchane, A., 2007, 'Multidimensional Measures of Well-Being: **Standard of Living and Quality of Life** Across Countries', World Development, vol. 35, no, 7, pp. 1259-1276
http://www.sciencedirect.com/science/article/pii/S0305750X07000563#ref_fn1
Abstract: Using Sen's capability approach, we propose to measure two components of well-being—standard of living and quality of life. Unlike the UNDP Human Development Index, the two indices do not mix measures of resource availability and of functioning and capability. The empirical results for 170 countries are based on two multidimensional analyses, the Totally Fuzzy Analysis and the Factorial Analysis of Correspondences. The paper also compares our results with the HDI and GDP per capita. It focuses on Africa, presents policy implications, and discusses aggregation and redundancy in multidimensional indices

Wills, E., 2009, 'Spirituality and Subjective Well-Being: Evidences for a New Domain in the **Personal Well-Being Index**', Journal of Happiness Studies, vol. 10, no. 1, pp. 49-69
http://www.springerlink.com/content/1u8u4l8uq648l87p/
Abstract: Subjective well-being explores the evaluations, both positive and negative, of how people experience their lives. Research in the field inquires how people perceive their well-being in different settings, including different cultures, regions and cities. A large number of different measures have been designed to capture subjective well-being. One of the most used SWB measure is the Personal Well-being Index (PWI), an evaluation of life developed by Cummins et al [(2003). Social Indicators Research, 64, 159–190] which proposes that satisfaction with life consists of seven different life-domains. Theoretical considerations of the contribution of spirituality and religiosity to life satisfaction, from a eudaimonic (from the Greek, it consists of the word ''eu'' (good or well-being) and the word

"daemon" (spirit)) point of view, led to test the contribution of this new domain in the prediction of the Personal Well-being Index (PWI) in Bogota´, Colombia. Empirical results confirm the construct validity and reliability of the scale. The contribution of the new domain—satisfaction with spirituality and religiosity—to PWI was found significant. Based on these results the paper explores conceptually the role of spirituality contributing to satisfaction with life. The finding stresses the importance of interpreting satisfaction with life as a whole from the Aristotelian concept of eudaimonia. New questions for research in this important area are proposed.

Sustainability indices

Lawn, Philip and Clarke, M., 2008, 'What is the **Genuine Progress Indicator** and How is it Typically Calculated?', in Sustainable welfare in the Asia-Pacific, eds. P. Lawn and M. Clarke, Edward Elgar Publishing, Inc., Cheltenham, United Kingdom, pp. 47-68
http://www.deakin.eu.au/dro/view/DU:30017004

Lawn, Philip and Clarke, M., 2008, 'In Defence of the **Genuine Progress Indicator**', in Sustainable welfare in the Asia-Pacific, eds. P. Lawn and M. Clarke, Edward Elgar Publishing, Inc., Cheltenham, United Kingdom, pp. 68-88
http://www.deakin.edu.au/dro/view/DU:30017005

Distaso, A., 2007, 'Well-being and/or Quality of Life in EU countries through a **Multidimensional Index of Sustainability**', Ecological Economics, vol. 64, no. 1, pp. 163-180
http://www.sciencedirect.com/science/article/pii/S0921800907001413
Abstract: The aim of my paper is to demonstrate that Sen's theory of well-being can be applied to make the concept of sustainable human development operational through the building of a multidimensional index of sustainability which takes into account, at the same time, economic, social and environmental variables. This index may be considered an alternative to the current measures of welfare/sustainability since not only conventional measures such as GDP, but also multi-attribute indices, such as Human Development Index (HDI), Genuine Savings, Index of Sustainable Economic Welfare (ISEW) *etc.*, are found to be inadequate to make the concept of sustainable development operational. Therefore, the limitations of these measures of welfare/sustainability justify the search for a new index of sustainability. This index will show, at the operational level, how Sen's theory of well-being can be useful to sustainable development. It was applied to EU countries using the standardised deviation methodology being the closest and most suitable methodology to be adopted for building multidimensional indices. The factor analysis methodology will also be used in my paper. Lastly, the comparison between Sen's trend of sustainability and GDP trend index number–which are both of them applied to Italy–will show how much the criticisms and the limitations directed towards the indicator of GDP are founded.

Watts Poverty Index

Muller, C., 2001, 'The Properties of the Watts Poverty Index Under Lognormality', Economics Bulletin, vol. 9, no. 1 pp. 1−9
http://www.accessecon.com/pubs/EB/2001/Volume9/EB-01I30001A.pdf
Under lognormality assumption, we derive the parametric formula of the Watts measure, one of the main axiomatically sound poverty measures. In these conditions, we derive new properties of the Watts measure, its sensitivity to distribution parameters and its parametric standard error.

Chakravarty, S.R., Deutsch, J. and Silber, J., 2008, 'On the Watts Multidimensional Poverty Index and its Decomposition', World Development, vol. 36, no. 6, pp. 1067-1077
http://www.sciencedirect.com/science/article/pii/S0305750X08000430

Abstract: The multidimensional extension of the Watts poverty index may be expressed as a function of five determinants measuring, respectively, the impacts of what are defined in the paper as the Watts poverty gap ratio, the Theil–Bourguignon index of inequality among the poor, the overall headcount ratio, the weights of the various dimensions, and some measure of correlation between the various dimensions. Using the Shapley decomposition, we apply this index to world data on the *per capita* GDP, life expectancy, and literacy rates and derive the contributions of the five determinants defined above to the variation of this index during 1993–2002.

Asset index

Booysen, F. et al., 2008, 'Using an Asset Index to Assess Trends in Poverty in Seven Sub-Saharan African Countries', World Development, vol. 36, no. 6, pp. 1113-1130
http://www.sciencedirect.com/science/article/pii/S0305750X08000466

Abstract: Using comparable, nationally representative surveys and extending the work of [Sahn, D. E., & Stifel, D. C. (2000). Poverty comparisons over time and across countries in Africa. *World Development, 28*(12), 2123–2155], an asset index is used to investigate changes in poverty in seven African countries. Poverty declined in five of the seven countries. Improvements in the asset index are driven by progress in the accumulation of private assets, while access to public services has deteriorated. However, the method has some shortcomings. Assets are slow-changing and discrete. The index therefore may not capture changes in well-being accurately. The poor discrimination ability of the index at the lower end of the scale also makes it an inappropriate tool for studying ultra-poverty.

Price Indexes

Deaton, A., 2010, 'Price Indexes, Inequality, and the Measurement of World Poverty', The American Economic Review, vol. 100, no. 1, pp. 1-34
http://ideas.repec.org/p/pri/rpdevs/1207.html

Abstract: I discuss the measurement of world poverty and inequality, with particular attention to the role of purchasing power parity (PPP) price indexes from the International Comparison Project. Global inequality increased with the latest revision of the ICP, and this reduced the global poverty line relative to the US dollar. The recent large increase of nearly half a billion poor people came from an inappropriate updating of the global poverty line, not from the ICP revisions. Even so, PPP comparisons between widely different countries rest on weak theoretical and empirical foundations. I argue for wider use of self-reports from international monitoring surveys, and for a global poverty line that is truly denominated in US dollars.

Inequity-in-Health Index

Eslava-Schmalbach, J. et al., 2008, 'A New Inequity-in-Health Index based on Millenium Development Goals: Methodology and Validation', Journal of Clinical Epidemiology, vol. 61, no. 2, pp. 142-150
http://www.sciencedirect.com/science/article/pii/S089543560700159X

Summary: Developing a new Inequity-in-Health Index (IHI) assuming inequity as "inequality of health outcomes," based on Millennium Development Goals (MDG). Six variables were used for constructing the IHI was constructed with six variables: underweight children, child mortality, death from malaria in children aged 0–4, death from malaria at all ages, births attended by skilled health personnel, and immunization against measles. The IHI had high internal consistency (Cronbach's alpha = 0.8504),

was reliable (Spearman > 0.9, P = 0.0000), and had 0.3033π around the world (range: 0π–0.5984π). IHI had high correlation with the human development and poverty indexes, health gap indicator, life expectancy at birth, probability of dying before 40 years of age, and Gini coefficients (Spearman > 0.7, P = 0.0000). IHI discriminated countries by income, region, indebtedness, and corruption level (Kruskal Wallis, P < 0.01). IHI had sensitivity to change (P = 0.0000).

Country indices

Kroll, C., 2011, 'Measuring Progress and Well-Being: Achievements and Challenges of a New Global Movement', friedrich ebert stiftung, Berlin
http://library.fes.de/pdf-files/id/ipa/08509.pdf
The current debate on measuring progress and well-being is rapidly gaining in importance throughout the world. Efforts to this end have the potential to bring about a real paradigm shift concerning what we as a society consider to be progress and how, as a consequence, we will shape how we live together. **Case studies from various pioneering countries are presented** here to highlight what has been achieved two years after the landmark Stiglitz et al. report, as well as what future challenges need to be addressed.

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