

# DRO

Deakin University's Research Repository

**This is the published version**

McGillivray, Mark and Clarke, Matthew 2006, Human well-being: Concepts and measures, in Understanding human well-being, United Nations University Press, New York, NY., pp.3-16.

**Available from Deakin Research Online**

<http://hdl.handle.net/10536/DRO/DU:30008358>

Reproduced with the kind permission of the copyright owner

**Copyright:** 2006, United Nations University Press

---

# 1

---

## Human well-being: Concepts and measures

---

*Mark McGillivray and Matthew Clarke*

---

### Introduction

Understanding human well-being is a core task for both researchers and policy-makers. Determining whether human well-being has improved over time is of crucial importance, particularly with more than 1 billion people living on less than \$1 a day. It is the central challenge for monitoring progress towards the Millennium Development Goals (MDGs), adopted by the international community at the UN Millennium Summit in September 2000. Among the many MDGs are halving, between 1990 and 2015, the proportion of people living in conditions of extreme income poverty and ensuring by 2015 that all children will be able to complete a full course of primary education (UN Millennium Project Report, 2005).

Human well-being, however, is an ambiguous concept. It lacks a universally acceptable definition and has numerous, and often competing, interpretations. As human well-being cannot be directly observed, it cannot be directly measured. Further, terms such as quality of life, welfare, well-being, living standards, utility, life satisfaction, prosperity, needs fulfilment, development, empowerment, capability expansion, human development, poverty, human poverty, and, more recently, happiness are often used interchangeably with well-being without explicit discussion as to their distinctiveness.

Conceptualization of human well-being has evolved over time. Its multidimensional nature is now commonplace in discussion, yet in only

recent times human well-being was considered analogous with income and consumption levels. Much of this shift reflects Sen's (1985, 1987a, 1987b) work on capabilities and functionings, and other work such as Nussbaum's (1988, 1992, 2000) central human capabilities, Doyal and Gough's (1991) intermediate human needs and Narayan et al.'s (2000) axiological needs, among many others. Subsequently, approaches to measuring human well-being have widened to incorporate these non-economic aspects. Issues such as gender and sustainability have also become increasingly integrated within human well-being analysis.

Given this evolution, it would seem incongruous that the most common measure of human well-being is still income. Income allows individuals (and nations at the aggregate level) to increase consumption, and consumption increases utility. However, little agreement exists within the literature on how consumption might represent human well-being. Well-being has been defined as a direct function of consumption (McKenzie, 1983; Slesnick, 1998), particularly in areas of great poverty (Huetting, 1980), as a function of consumption and the environment (Islam, 1998), as a function of consumer surplus (Johnson, 1996), as a function of consumption weighted by probability of survival (Nordhaus, 1998) and as marginal propensity to consume (Islam, 2000). Yet the limitations of income-based (or consumption-based) measures of human well-being are well known, including limitations around equity, environment and its own construction (see Clarke and Islam, 2004, for a summary).

Despite these weaknesses, though, income "continues to be regarded as the 'quintessential' well-being indicator" (Dasgupta, 2001: 53). One suspects that a major reason for this is data availability and reliability. Composite indicators, such as the human development index (HDI) (UNDP, 1990) and its forerunner, the physical quality of life index (Morris, 1979), were designed to challenge the hegemony of income as the representative measure of human well-being and overcome these weaknesses. The HDI is a function of life expectancy, adult literacy, school enrolments and GDP per capita. Its purpose is to extend consideration of human development of well-being away from the economic-centric nature suggested when simply using income.

Existing largely in parallel with the aforementioned *objective* considerations of human well-being is research on *subjective* well-being (or happiness). Subjective well-being involves a multidimensional evaluation of life, including cognitive judgements of life satisfaction and affective evaluations of emotions and moods (Diener, 1984; Argyle, 1987; Diener and Larsen, 1993; Eid and Diener, 2003). Three decades ago Easterlin (1974) examined links between income and happiness and found that while individuals with higher incomes were happier than those with lower incomes at a particular point in time, the happiness of a particular cohort did not

increase with income over time. Happiness levels actually remained constant despite large increases in income. Cummins (1998) has proposed a theory of subjective well-being homeostasis, in which happiness is actively controlled and maintained by a set of psychological devices that function under the control of personality. While good or bad events will cause a short-term change in subjective well-being, these psychological devices will return human well-being to previous levels. Such adaptation resulting in this stagnant trend line poses serious difficulties for public policy-makers interested in improving human well-being over time.

Integrating well-being and sustainability measures has long existed within the literature (Sametz, 1968; Nordhaus and Tobin, 1973; Zolotas, 1981). Anand and Sen (2000) view sustainability as a concern for inter-generational equity. One approach integrating sustainability measurement into human well-being measures is the genuine progress index (GPI) (Daly and Cobb, 1990). The GPI is a monetary-based index that has been designed to ascertain the impact of a growing economy on sustainable well-being. It comprises a large number of individual benefit and cost items that account for these wide-ranging impacts of economic growth, including social and environmental benefits of costs as well as the standard economic variety. Therefore, whilst the GPI embraces some national accounting values, its full calculation depends on a number of other values that normally escape market valuation. Such attempts to adjust well-being indices using sustainability measures are not without criticism (Neumayer, 1999).

Regardless of the measurement approach selected, gender must be an important consideration in both conceptualizing and measuring human well-being. Yet much of the work in the literature fails to include gender analysis explicitly. The major difficulty, though, is that gender-adjusted measures are subject to the same criticisms as the variables on which they are based (Klasen, 2004). Further, gender-adjusted indicators tend to be very highly rank-correlated with their non-specific or non-adjusted counterparts, and with other well-being indicators, including income per capita. This is not of course an argument against using gender-specific or gender-adjusted indicators, merely one for improving their accuracy and comparability.

Given such an array of conceptualizations and approaches to measurement, how can one adequately make sense of human well-being? Various data are now widely published, often for large country samples. The UNDP, in its *Human Development Report 2004*, publishes data on life expectancy, adult literacy and school enrolment ratios for 177 countries; the *World Development Indicators* (World Bank, 2005) contains around 800 indicators for over 150 countries; and the *World Happiness Database* (Veenhoven, 2004) contains 2,300 surveys in 112 nations, dating from

1946 to the present. Concerns remain, however, about the reliability and comparability of many of these indicators. Most of the widely used social indicators are based on information obtained from national censuses. Yet many countries, especially the poorest, do not have the resources to conduct accurate censuses. No country conducts a yearly national census and some countries conduct them at irregular intervals. Data for the intervening years have to be estimated. Given these and a number of methodological problems, the data tend to be incomparable both between countries at a given point in time and within given countries over time; data can therefore be difficult to interpret, especially if a number of indicators of human well-being (such as in the MDGs) are being considered. But the compelling need to understand human well-being requires the use of these indicators, despite these weaknesses, as well as continuously improving both the conceptualization and the empirical estimation of human well-being.

### Volume orientation and contents

Despite all these clear and obvious difficulties in assessing human well-being, this task is crucial. Improving human well-being, especially of the poor, must be and remain a central task for all public policy-makers. Even if the concept can be directly observed and metrically measured, attempts to assess public policy against this test of improving well-being are required. We now know more about human well-being and the related concepts of poverty and inequality than ever before, as a result of conceptual and methodological advances and better data. Yet despite this progress, the vitality of underlying concepts and the quality of data are repeatedly challenged and there remains much to be desired, particularly with regard to the world's poorest countries.

This book looks at advances in underlying well-being concepts and corresponding empirical measures and highly various analytical approaches. Its orientation is largely consistent with the view that well-being is multi-dimensional. Identifying an exhaustive list of dimensions is no easy task. Getting general agreement on the list and the relative importance of each component would appear to be an impossible one. It follows that identifying an exhaustive list of measures that all could agree on is also an impossible task. But there would appear to be general agreement that this list would include measures of health, education and income. Income is the most contentious of these variables, and many will argue that it is the least important. But it would appear to be difficult to argue that it is irrelevant and that it should be ignored altogether in the assessment and analysis of achieved well-being. The international community cer-

tainly does not subscribe to this view, given that reducing income poverty has been included among the MDGs.

The book therefore examines traditional monetary concepts and measurements along with concepts and measures in non-income spheres, including educational achievement, longevity, health and self-assessed or subjective well-being. Among the measures examined are the indices produced by the UNDP, including the well-known HDI, one of many non-exclusively monetary measures that have done much to refocus attention on the importance of non-monetary measures of human well-being.

Some of the book's chapters are purely conceptual, some are empirical and others a mix of the two. Some chapters review pre-existing concepts and measures, with a view of future developments, while others propose new measures or adjustments to pre-existing ones. Others provide case-study material relating to a mix of developing, transitional or developed countries.

This book is divided into three parts. Part I contains four chapters, each focusing on human well-being concepts. The seven chapters in part II provide various measures and empirical applications of human well-being, while part III includes four human well-being case studies.

Chapter 2 by Caterina Ruggeri Laderchi, Ruhi Saith and Frances Stewart asks whether it is important for general agreement around definitions of poverty to exist within the literature. While there is worldwide agreement on poverty reduction as an overriding goal of development policy, there is little agreement on the definition of poverty. Four approaches to the definition and measurement of poverty are reviewed in this chapter: the monetary, capability, social exclusion and participatory approaches. The theoretical underpinnings of the various measures and problems of operationalizing them are pointed out. The authors argue that each is a construction of reality, involving numerous judgements which are often not transparent. The different methods have different implications for policy, and also, to the extent that they point to different people as being poor, for targeting.

Andrew Sumner discusses the measurement of poverty and well-being in chapter 3. He provides a historical overview of the last 50 years. This is followed by discussion of three groupings of indicators: those measures based primarily on economic well-being, those based on non-economic well-being and composite indicators. Sumner argues that the choice of indicator should reflect its purpose and that economic measures are best when quick, rough-and-ready, short-run, aggregate inferences are required. In contrast, non-economic measures are better when greater depth regarding medium- or longer-term trends and/or disaggregation are required.

Human well-being is conceptualized as four simultaneous qualities of life by Ruut Veenhoven in chapter 4. The terms “quality of life”, “well-being” and “happiness” denote different meanings; sometimes they are used as an umbrella term for all of value, and at other times to denote special merits. This chapter is about the specific meanings of the terms. It proposes a classification based on two bi-partitions; between life “chances” and life “results”, and between “outer” and “inner” qualities. Together these dichotomies imply four qualities of life: liveability of the environment, life-ability of the individual, external utility of life and inner appreciation of life. This fourfold matrix can be applied in three ways: first to place related notions and alternative classifications, second to explore substantive meanings in various measures for quality of life and third to find out whether quality of life can be measured comprehensively.

The final chapter in part I, by Douglas A. Hicks, is concerned with inequalities, agency and well-being. Sen’s (1985, 1987a, 1987b) capabilities approach has emphasized that inequalities can be analysed in various dimensions of human functioning. Indicators of these inequalities can be incorporated into assessments of well-being. The capabilities approach also highlights the intrinsic importance of agency and demonstrates empirically that agency is instrumentally valuable for achieving various functionings. This chapter draws together these discussions to delineate the relationships among inequalities, agency and well-being of disadvantaged persons. Relative deprivation (e.g. being illiterate or being in ill health) negatively affects a person’s well-being and contributes to a lack of agency. Conversely, some (but not all) expressions of agency by disadvantaged persons can help reduce inequalities. This model provides a complex understanding of the dynamics of deprivation – and its alleviation.

In the first chapter of part II, Mina Balamoune-Lutz introduces a fuzzy-set theory approach to measurement of human well-being. Balamoune-Lutz suggests that Sen’s (1985, 1987a, 1987b) influential work on human development has led economists to explore new areas that have become increasingly important for human well-being. In particular, Sen emphasizes the importance of the “freedom to choose”. Freedom, however, is not always an exact (crisp) outcome, and membership in the freedom space can take place gradually. This chapter proposes a framework that uses fuzzy-set theory to measure human well-being consistent with Sen’s capability approach.

The need for monitoring countries’ overall performance in sustainable development is discussed by Laurens Cherchye and Timo Kuosmanen in chapter 7. While the need for sustainable development is widely recognized, the methods for aggregating vast amounts of empirical data remain rather crude. This chapter examines the so-called “benefit-of-the-doubt”

weighting method as a tool for identifying benchmarks without imposing strong normative judgement about sustainable development priorities. The weighting method involves linear optimization techniques, and allows countries to emphasize and prioritize those sustainable development aspects in which they perform relatively well. Using this method, Cherchye and Kuosmanen construct a meta-index of sustainable development (MISD), which combines 14 existing aggregate sustainable development indices (developed by well-established organizations and/or expert teams) into a single synthesizing overall sustainable development index. Within a sample of 154 countries, this index identifies 6 benchmark countries (3 high-income countries and 3 upper-middle-income countries), but also a number of seriously underperforming countries. They view this approach as a first step towards more systematic international comparisons aimed at facilitating diffusion of the best practices and policies from the benchmark countries to the less developed world.

Chapter 8, by Mark McGillivray and J. Ram Pillarisetti, looks at the issue of adjusting well-being indicators for gender disparities. It is specifically concerned with the gender-related development index (GDI) and gender empowerment measure (GEM), composite indicators initially proposed by the UNDP in its *Human Development Report 1995*. It considers the extent to which these indices provide insights, with respect to country rankings, which pre-existing, non-gender-specific development indicators cannot provide. The latter indicators are PPP GDP per capita and the HDI.

Chapter 9, by Mariano Rojas, investigates human well-being from a subjective well-being approach. Using a Mexican database, Rojas shows that there is a weak relationship between subjective well-being and indicators of well-being such as income and consumption. Therefore, subjective well-being provides additional useful information to study human well-being and, in consequence, poverty. Three reasons for the existence of a weak relationship are studied: first, the fact that a person is much more than a consumer; second, the role of heterogeneity in human perceptions; and third, the existence of heterogeneity in purposes of life. Rojas argues that understanding and reducing poverty would be better served by a concept of human well-being which incorporates subjective well-being indicators and is based on the wholeness and complexity of human beings.

International inequality in well-being is examined by Mark McGillivray in chapter 10. Inter-country inequality in per capita income has been extensively researched over many decades. The literature on this topic is vast. A smaller but steadily growing number of studies have examined inequality among countries in multidimensional well-being. Most of these studies have looked at inequality in the HDI. Chapter 10 contributes to

this literature. It examines HDI inequality among more than 170 countries over the period 1997–2002 using a number of different inequality measures. Unlike previous studies, McGillivray also looks at inequality in each of the HDI's components and PPP GDP per capita, asking whether they tell more of a story with respect to inequality than the index as a whole.

Matthew Clarke applies a hierarchical approach to measuring human well-being to eight South-East Asian countries in chapter 11. This hierarchical approach is underpinned by a rigorous psychological theory of human motivation (Maslow, 1970). Hierarchical human needs are classified into five categories: basic, safety, belonging, self-esteem and self-actualization. Within this chapter well-being is defined as a function of the extent to which society facilitates the attainment or fulfilment of the ultimate hierarchical need: self-actualization. Clarke operationalizes this approach by identifying outcomes and indicators that represent or correspond to the four lower levels of needs upon which the achievement of self-actualization is predicated. Eight indicators have been chosen to reflect these four hierarchical categories. A composite indicator of these eight indicators is calculated using an approach similar to that of the HDI. Weights are also assigned to the different levels within this hierarchy to reflect the shift from minimally adequate standards to higher levels of well-being within nations. The countries surveyed for the period 1985–2000 are Cambodia, Indonesia, Lao PDR, Malaysia, the Philippines, Singapore, Thailand and Viet Nam. Results for Australia are also provided as a comparative benchmark.

The Australian experience is discussed in chapter 12 by Ann Harding, Rachel Lloyd, Anthea Bill and Anthony King. In recent years new spatial microsimulation techniques, involving the creation of synthetic data about the socio-economic characteristics of households at a detailed regional level, have been developed. The data are potentially available at any level of geographic aggregation, down to the level of the census collection district within Australia (about 200 households). This chapter describes the results of initial attempts to link the new database to an existing static microsimulation model of taxes and transfers in Australia, so that the spatial impact upon poverty and inequality of possible policy changes can be assessed. This chapter then outlines the new techniques used to create the synthetic household microdata and demonstrates how they can be used to analyse poverty rates, the spatial impact of possible policy change and the characteristics of the poor by geographic area.

Four case studies of human well-being are presented in part III. A number of these case studies look at income measures, in part due to reasons of data availability. In chapter 13 Oleksiy Ivaschenko discusses longevity in the regions of Russia, examining the impact of changes in

poverty and public health spending on intertemporal variations in longevity using a unique regional-level dataset that covers 77 regions of Russia over the period 1994–2000. A dynamic panel data model is used as a tool for the empirical analysis. The model is estimated using the Arellano-Bond dynamic panel data estimator.

Michael Grimm uses a dynamic microsimulation model to analyse the distributional effects of an expansion of education in Côte d'Ivoire in the medium and long term in chapter 14. The simulations are performed in order to replicate several policies in force or subject to debate in this country. Various hypotheses concerning the evolution of returns to education and labour demand are tested. The direct effects between education and income as well as the different transmission channels, such as occupational choices, fertility and household composition, are analysed.

Chapter 15, by Arne Bigsten and Abebe Shimeles, addresses issues related to the dynamics of income poverty using unique household panel data for urban and rural areas of Ethiopia for the period 1994–1997. Household characteristics that are correlated with the incidence of chronic poverty as well as vulnerability to poverty are highlighted. In chapter 16 they discuss which poverty reduction strategies are appropriate in rural areas compared to urban areas. Bigsten and Shimeles also discuss prospects for “pro-poor” growth in Africa. They examine trends in income distribution and its linkages to economic growth and poverty reduction in order to understand the prospects for achieving poverty reduction in Africa. They then examine the levels and trends in income distribution in some African countries and calculate pro-poor growth indices. Different growth patterns are simulated for Ethiopia, Mozambique, South Africa and Uganda.

## Key conclusions

The chapters in this book provide a number of insights which will be useful to both researchers and policy-makers. Within part I, Ruggeri Laderchi, Saith and Stewart conclude that the definition of poverty does matter for poverty eradication strategies. Sumner's review of the literature highlights that whilst conceptualization of human well-being is very rich, its empirical operationalization is still lagging behind. He notes this is largely a function of data and suggests that a suite of measures would be a better way of assessing improvements in human well-being. The conclusion reached by Veenhoven is that whilst it is better to distinguish four distinct life qualities rather than quality of life, it is not possible, nor does it make sense, to try to aggregate these qualities in any numerical way. He finds that the best available summary indicator of human well-

being is how long and happily a person lives. Hicks finds that improving the human well-being of the poor is best served by equipping these same people to be agents of their own development. This involves increasing the effectiveness of social structures, which will require addressing inequality across an array of dimensions.

In part II, in terms of applying measures of human well-being, Balamoune-Lutz concludes that the HDI and human well-being, when measured using fuzzy sets, yield different country rankings with significantly different levels of well-being for some countries. Thus she finds it is important to bear in mind that preferences and choices underlying both objective and subjective indicators of human well-being are vague; and that such vagueness can have major implications for the outcome of social and economic policies.

Cherchye and Kuosmanen show that measures of sustainable development can be benchmarked and comparative analysis between countries is possible. McGillivray and Pillarisetti conclude that, depending on the test statistic under consideration, there is some evidence that the GDI and GEM are, in an empirical sense, genuinely insightful indicators.

Rojas's chapter on well-being and the complexity of poverty highlights that not only are subjective well-being and socio-economic well-being different concepts, but they are not strongly correlated either. He concludes that subjective well-being indicators are important as they provide new information, beyond what traditional socio-economic indicators can provide. In discussing international inequality, McGillivray finds that the HDI and its components exhibit remarkably similar levels of inequality among countries but, as expected, much lower inequality than income per capita.

Clarke concludes that whilst a general increase of well-being based on the attainment of hierarchical needs is recorded across 8 countries in South-East Asia over the past 16 years, these improvements are much less (and often stagnant) than increases in well-being measured by single-dimension indicators, such as GDP per capita. He argues that policy-makers must consider hierarchical human needs and motivation when seeking to improve well-being through economic and social development activities.

The chapter on modelling poverty and inequality in Australia by Harding et al. found that restoring the social security rate paid to recipient couples to the same level paid to pensioner couples would reduce overall poverty in Australia by 0.3 per cent and reduce child poverty by 0.5 per cent. They suggest that their new model is useful for policy-makers in order to understand the different characteristics of those in poverty in different geographic areas.

The breadth of geographical reach makes the results of part III par-

ticularly interesting. The empirical results of Ivaschenko's chapter for the regions of Russia indicate that while male life expectancy responds more strongly than female life expectancy to economic circumstances, the latter appears to be more predisposed to the influence of public health spending. The results support the idea that the (positive) effect of public health spending on life expectancy is larger for those regions that experience higher incidences of poverty. The chapter also finds that the financial crisis which hit Russia at the end of 1998 had a significant negative effect on longevity independently of the factors directly related to poverty and public health spending.

Grimm finds the effects of educational expansion on the growth of household incomes, their distribution and poverty in Cote d'Ivoire depend very crucially on the hypothesis made on the evolution of returns to education and labour demand. For example, if returns to education remain constant and the labour market segments, the effects will be very modest.

In their study of poverty in Ethiopia, Bigsten and Shimeles find that the percentage of households remaining in poverty was twice as large in urban areas as in rural areas. This suggests that income variability is a serious problem in rural areas, while persistence is a key feature of urban poverty. In Bigsten and Shimeles's second contribution, on the possibility of pro-poor growth in Africa, they find that the balance between policies aimed at growth and measures aimed at redistribution should depend on the elasticity of the growth-equity trade-off.

The topics covered in this book provide a good illustration of the range of current research on both the conceptualization and the empirical measurement of multidimensional human well-being. It is hoped that these chapters will stimulate further research along similar lines.

## REFERENCES

- Anand, S. and A. Sen (2000) "Human Development and Economic Sustainability", *World Development* 28(12): 2029–2049.
- Argyle, M. (1987) *The Psychology of Happiness*, London: Routledge.
- Clarke, M. and S. Islam (2004) *Economic Growth and Social Well-being: Operationalising Normative Social Choice Theory*, Amsterdam: North Holland.
- Cummins, R. A. (1998) "The Second Approximation to an International Standard of Life Satisfaction", *Social Indicators Research* 43: 307–334.
- Daly, H. and J. Cobb (1990) *For the Common Good*, Boston, Mass.: Beacon Press.
- Dasgupta, P. (2001) *Human Well-being and the Natural Environment*, Oxford: Oxford University Press.

- Diener, E. (1984) "Subjective Well-being", *Psychological Bulletin* 95: 542–575.
- Diener, E. and R. J. Larsen (1993) "The Experience of Emotional Well-being", in M. Lewis and J. M. Haviland, eds, *Handbook of Emotions*, New York: Guilford.
- Doyal, L. and I. Gough (1991) *A Theory of Need*, London: Macmillan.
- Easterlin, R. A. (1974) "Does Economic Growth Improve the Human Lot? Some Empirical Evidence", in P. A. David and M. W. Reder, eds, *Nations and Households in Economic Growth. Essays in Honour of Moses Abramovitz*, New York: Academic Press.
- Eid, M. and E. Diener (2003) "Global Judgements of Subjective Well-being: Situational Variability and Long-term Stability", *Social Indicators Research* 65: 245–277.
- Huetting, R. (1980) *New Scarcity and Economic Growth* (translated by T. Preston), Amsterdam: North Holland.
- Islam, S. (1998) "Ecology and Optimal Economic Growth", paper presented at the Fifth Biennial Meeting of the International Society for Ecological Economists, Santiago, 15–19 November, unpublished.
- (2000) "Applied Welfare Economics: Measurement and Analysis of Social Welfare by Econometric Consumption Models", mimeo, CSES, Victoria University, Melbourne.
- Johnson, D. (1996) *Poverty, Inequality and Social Welfare in Australia*, Heidelberg: Physica-Verlag.
- Klasen, S. (2004) "Gender-related Indicators of Well-Being", paper presented at the Twenty-eighth General Conference of the International Association for Research in Income and Wealth, Cork, 22–28 August, unpublished.
- Maslow, A. (1970) *The Farther Reaches of the Human Mind*, New York: Viking Press.
- McKenzie, G. (1983) *Measuring Economic Welfare*, Cambridge: Cambridge University Press.
- Morris, M. (1979) *Measuring the Condition of the World's Poor: The Physical Quality of Life Index*, New York: Pergamon.
- Narayan, D., R. Chambers, M. K. Shah and P. Petesch (2000) *Voices of the Poor: Crying Out for Change*, New York: Oxford University Press for the World Bank.
- Neumayer, E. (1999) "The ISEW: Not an Index of Sustainable Economic Welfare", *Social Indicators Research* 48: 77–101.
- Nordhaus, W. (1998) *The Health of Nations: Irving Fisher and the Contribution of Improved Longevity to Living Standards*, Cowles Foundation Discussion Paper No. 1200, New Haven: Cowles Foundation for Research in Economics.
- Nordhaus, W. and J. Tobin (1973) "Is Growth Obsolete?", in M. Moss, ed., *The Measurement of Economic and Social Performance*, NBER, Studies in Income and Wealth 38, New York: Columbia University Press.
- Nussbaum, M. C. (1988) "Nature, Function and Capability", *Oxford Studies in Ancient Philosophy*, Supplement 1: 145–184.
- (1992) "Human Functioning and Social Justice", *Political Theory* 20(2): 202–246.

- (2000) *Women and Human Development: The Capabilities Approach*, Cambridge: Cambridge University Press.
- Sametz, A. (1968) “Production of Goods and Services: The Measurements of Economic Growth”, in E. Sheldon and W. Moore, eds, *Indicators of Social Change*, New York: Russell Sage Foundation.
- Sen, A. (1985) *Commodities and Capabilities*, Amsterdam: North Holland.
- (1987a) “The Standard of Living: Lecture I, Concepts and Critiques”, in G. Hawthorn, ed., *The Standard of Living*, Cambridge: Cambridge University Press.
- (1987b) “The Standard of Living: Lecture II, Lives and Capabilities”, in G. Hawthorn, ed., *The Standard of Living*, Cambridge: Cambridge University Press.
- Slesnick, D. (1998) “Empirical Approaches to the Measurement of Welfare”, *Journal of Economic Literature*, 36(December): 2108–2165.
- UNDP (1990) *Human Development Report*, New York: Oxford University Press.
- (1995) *Human Development Report 1995*, New York: Oxford University Press.
- (2004) *Human Development Report 2004*, New York: Oxford University Press.
- UN Millennium Project Report (2005) *Investing in Development: A Practical Plan for Achieving the Millennium Development Goals*, New York: UNDP.
- Veenhoven, R. (2004) *World Happiness Database*, available from [www.eur.nl/fsw/research/happiness](http://www.eur.nl/fsw/research/happiness).
- World Bank (2005) *World Development Indicators 2005*, Washington, D.C.: World Bank.
- Zolotas, X. (1981) *Economic Growth and Declining Social Welfare*, New York: New York University Press.