

The Capability Approach to the Quality of Life¹

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One of the films nominated for a Palme d'Or at Cannes a few years ago had a strangely fetching title: *Bread and Roses*. The title plays on a number of underlying resonances, including Marie Antoinette's alleged response to bread shortages, and an ancient rejected suggestion that stones be transformed into bread. Actually the film focuses on justice for janitors, and the phrase derives, appropriately, from a poem by James Oppenheim about a labour strike in Lawrence, Massachusetts in 1912. In his account, the female textile workers were deeply disgruntled, but the women's concerns – and demands – extended beyond mere remuneration. 'Our lives shall not be sweated from birth until life closes; Hearts starve as well as bodies:' the workers observe, 'Give us Bread, but give us Roses!'

The demand for roses too – not merely for survival but for beauty, fondness and fragrance – seems as perennial as it is elusive. Yet it is this amplitude of aims and tastes that influences the quality of life also, making it as difficult to pursue as it is important. For this reason, before attempting to tackle the topic it might be useful to appreciate its intractability, which is well articulated in the following passage:

There are two major challenges in developing an appropriate approach to the evaluation of the standard of living. First, it must meet the motivation that makes us interested in the concept of the living standard, doing justice to the richness of the idea. It is an idea with far-reaching relevance, and we cannot just redefine it in some convenient but arbitrary way. Second, the approach must nevertheless be practical in the sense of being usable for actual assessments of the living standard. This imposes restrictions on the kinds of information that can be required and the techniques of evaluation that may be used.

These two considerations – relevance and usability – pull us, to some extent, in different directions. Relevance may demand that we take on board the inherent complexities of the idea of the living standard as fully as possible, whereas usability may suggest that we try to shun complexities if we reasonably can. Relevance wants us to be ambitious; usability urges restraint. This is, of course, a rather common conflict in economics, and while we have to face the conflict squarely, we must not make heavy weather of it" (Sen, 1987).

Researchers, for better or worse, seem dispositionally unable to skirt heavy weather, but we will try to pass through the discussions swiftly. This background note considers resources

¹ I am grateful to Amartya Sen, James Foster, and Enrica Chiappero-Martinetti for comments on this note. Errors remain my own.

and utility as possible spaces for quality of life measures, and finds these to be vital but incomplete approaches. The second section articulates the scope and relevance of capabilities as a space for the evaluation of quality of life. Next we consider the unit of analysis, arguing that while group and community and institutional levels of analysis are all vital, an assessment of quality of life without individual level analyses is incomplete. The closing section considers the various value judgements entailed in a Quality of Life measure. The note also includes brief but concrete notes on dimensions, measurement methodologies, and some country experiences. As Robeyns and Veen wrote, “there is no generally accepted definition of ‘quality of life’.”² But some agreement might be possible regarding core characteristics of an adequate quality of life measure, and although they are unlikely to be as poetic, or rich, as the idea itself, it could be interesting to uncover these. That, at least, is our aim.

Resources and utility

Any approach to quality of life may wish to select the space in which to measure quality of life. Of course indicators may be used from different spaces, but a conceptually coherent approach should be able to explain why particular indicators have been chosen.

One traditional approach to measuring the quality of life focuses upon the resources commanded by different persons. The most common resource measures by far are monetary indicators of income or consumption. Non-monetary resources may include a range of assets, as well as access to certain public services such as health, education, water, electricity, and roads. In some approaches – such as that advanced by John Rawls – resources are extended further to include primary goods.³ The resource-based approach to quality of life measures has an immediate moral appeal because it appears to refrain from any potentially difficult value judgements, and leaves each person or family free to arrange their resources in whatever way seems best to them. Standing in the liberal tradition, these general purpose measures appear to respect privacy, non-interference and freedom of choice.

While resources are clearly vital and essential instruments to achieving a high quality of life, there are several reasons why quality of life measures based on resources alone could be insufficient.⁴ First, many resources are not intrinsically valuable; they are instrumental to other objectives, yet the quality of life arguably depends not on the mere existence of resources but on what they enable people to do and be: “The value of the living standard lies in the living, and not in the possessing of commodities, which has derivative and varying relevance” (Sen, 1987). This would not be problematic if resources were a perfect proxy for intrinsically valuable activities or states. But instead people’s ability to convert resources into a valuable functioning varies in important ways. Having a small red laptop might be a delightful source of recreation, pleasure and status to one particular teenager. But if a person is intimidated by computers, blind, or unable to read, its presence in their household would not automatically augment their quality of life to the same degree.

² Robeyns & van der Veen, 2007

³ Rawls, 1971, Rawls, 1993, Rawls & Kelly, 2001

⁴ These arguments appear for example in Sen, 1984, Sen, 1985, Sen, 1987, Sen, 1989, Sen, 1992a, Sen, 1993, Sen, 1999

Similarly, two people might each enjoy the same quality and quantity of food every day. But if one is very sedentary and one a builder, or one is elderly and one is pregnant, or one has a low metabolism and the other a very high metabolism, then their nutritional status may diverge significantly. The builder, the pregnant woman, and the person with a high metabolism may be noticeably less well nourished. While it is possible to adjust resources to some extent for people's varied abilities to convert resources into functionings – as equalized income does for people of different ages – direct measures of functionings such as nutritional status provide more simple objective data relevant to their quality of life. Finally, while resources appear to refrain from value judgements in fact the choice of resources, for the reasons given above, clearly imposes some assumptions about quality of life anyway. It is not value-free.

Although resources are, we have argued, not an adequate space for assessing quality of life, *indicators* of resources – of time, of money, or of particular resources such as drinking water, electricity, and housing – are still highly relevant to quality of life measures, and often are used to proxy functionings (adjusted for some interpersonal variations in conversion of resources into functionings). Resources may also be used to estimate capability sets. For example Zaidi and Burchardt used time use and monetary data together to map constraints on the capability sets of individuals (2005).

Utility, happiness and subjective well-being form another and increasingly visible and compelling source of data and insights into the quality of life.⁵ The intrinsic importance of happiness gives it an immediate intuitive priority, as popular phrases such as *contentement passe richesse* – contentment surpasses riches – suggest. Capitalising on this, utilitarianism argues that the quality of life is reflected *exclusively* in the subjective state of the person – defined variously as utility, happiness, and satisfaction. The welfare economics advanced by Bentham, Mill, Edgeworth, Sidgwick, Marshall, Pigou relies on such a utilitarian approach. As Sen observed, “Utilitarianism was for a very long time the ‘official’ theory of welfare economics in a thoroughly unique way” (2008).

Recent insights from empirical work on happiness and subjective well-being have enriched the empirical basis of utilitarianism significantly. In particular, the impossibility of interpersonal comparisons of utility has been overturned by empirical analysis of happiness, life satisfaction, and psychological well-being. Some have thus proposed that subjective well-being should replace income, resources, or capabilities as the focal space in which to judge overall social progress and quality of life. For example Layard argues that, “unless we can justify our goals by how people feel, there is a real danger of paternalism. We ought never to say: this is good for you, even though it will never make you or others feel better. On the contrary, if we want to measure the quality of life, it must be based on how people feel” (Layard, 2005).

⁵ Diener, 1995, Diener, *et al.*, 1995, Diener & Suh, 1997, Ng, 1997, Oswald, 1997, Diener, *et al.*, 1999, Frey & Stutzer, 1999, Kahneman, *et al.*, 1999, Diener, 2000, Diener & Suh, 2000, Frey & Stutzer, 2001, Frey & Stutzer, 2002, Veenhoven, 2002, Ng, 2003, Diener & Seligman, 2004, Kahneman, *et al.*, 2004, Van Praag & Ferrer-i-Carbonell, 2004, Kenny, 2005, Layard, 2005, Fleurbaey, 2006, Kahneman & Krueger, 2006, Kingdon & Knight, 2006

Unlike resources, happiness is arguably of ‘intrinsic value’ – and being happy seems to be “a momentous achievement in itself” (Sen, 2008). Furthermore, subjective data are not limited to material means – roses are no anathema here. Also, even if capabilities or freedoms were the focal objective, it might be anticipated that happiness would follow from their achievement, at least in some cases: “It is natural to take pleasure in our success in achieving what we are trying to achieve. Similarly, on the negative side, our failure to get what we value can be a source of disappointment.” (Sen 2008).

Clearly quality of life measures must integrate subjective well-being as an important dimension. However there are some compelling arguments against adopting happiness as the *sole* metric for considering the quality of life.

First and most directly, although happiness is clearly of intrinsic value, and is “an important human functioning”, it is arguably not “the only thing that we have reason to value, nor the only metric for measuring other things that we value” (Sen, 2008). People pursue various activities not simply as strategies to generate the greatest fundamental joy, but because these activities seem worthwhile in themselves. Indeed in qualitative work Ini Grewal and colleagues found that elderly people conceived of their own achievements in terms of capabilities, not simply mental states (Grewal et al., 2006).

Second, there remain some perplexing difficulties in the use of subjective data for policy purposes. Sen’s longstanding observations on ‘adaptive preferences’ remain apt:

The utilitarian calculus based on, say, happiness can be deeply unfair to those who are persistently deprived, such as the traditional underdogs in stratified societies, oppressed minorities in intolerant communities, precarious sharecroppers living in a world of uncertainty, sweated workers in exploitative industrial arrangements, subdued housewives in deeply sexist cultures. The hopelessly deprived people may lack the courage to desire any radical change and often *tend to adjust their desires and expectations to what little they see as feasible*. They train themselves to take pleasure in small mercies. The practical merit of such adjustments for people in chronically adverse positions is easy to understand: this is one way of making deprived lives bearable. But the adjustments also have the incidental effect of distorting the scale of utilities. (2008)⁶

The particularities of this difficulty vary according to the subjective indicators in use. At a general level, complexities arise because people’s happiness is a function of several factors: people’s values, people’s objective state, their knowledge of alternatives, the people to whom they are comparing themselves, and their evaluation of the likelihood of future improvement. This makes subjective data quite intricate – particularly as a guide for policy. For example, a middle-aged woman’s self-reported health may go up a) because her objective health improves; b) because she had previously seen the Olympics and had been unconsciously comparing herself with the athletes but now the memory has faded; c) because she recently tried a new medicine that she thinks could provide better health than she had previously ever hoped to attain, or d) because she realized she would never be in perfect health and so has somehow come to terms with her situation, and become grateful for the strength she does have. Techniques are under development to ‘clean’ subjective data

⁶ Qizilbash, 1997, Biswas-Diener & Diener, 2001, Nussbaum, 2001, Burchardt, 2003, Burchardt, 2005, Cookson, 2005

of adaptive preferences, changing reference frames and other influences, but the accurate interpretation remains quite involved.

While happiness may not be appropriate as a single sufficient measure of quality of life, it could have two roles in quality of life measures. “Happiness is not all that matters, but first of all, it does matter (and that is important), and second, it can often provide useful evidence on whether or not we are achieving our objectives in general” (Sen 2008).

First, happiness might be conceived of as one discrete and general functioning, to be explored alongside other important functionings such as being healthy, being well-nourished, and working. is important across cultures ages and times. If two people shared the same material living standard, but one were usually joyful, the other morose, this could be important to notice, as clearly the quality of life would improve if more people were joyful, and fewer, morose.

Second, subjective data might be used to provide insights on people’s values and perceptions with respect to other dimensions of interest. Functionings are things that people actually *value* – as well as have reason to value. Hence information on people’s actual values is given central importance. It is also of practical relevance to understand if people’s values and ensuing behaviours are deliberated and informed, or based on inaccurate information, propaganda, social norms, or manipulation. Subjective data could complement objective data, by giving some indication of people’s present values with respect to a functioning. Thus even if subjective and psychological well-being is not the *sole* metric of interest, it gives vital and practical insights.

Capabilities and functionings: scope and relevance

The capability approach to measuring the quality of life conceives of a high living standard in terms of the *freedom* people have to enjoy valuable activities and states. Amartya Sen has powerfully articulated the features, scope, advantages, and considerations of the capability approach in relation to measures of quality of life and living standard.⁷ However the capability approach pertains to a long line of reflection advanced by Aristotle, Adam Smith, Karl Marx, John Stuart Mill, and John Hicks among others. The capability approach argues that the quality of life should be conceived and measured directly in terms of functionings and capabilities instead of resources or utility. ‘The central feature of well-being is the ability to achieve valuable functionings. The need for identification and valuation of the important functionings cannot be avoided by looking at something else, such as happiness, desire fulfillment, opulence, or command over primary goods’ (Sen, 1985).

Functionings are beings and doings that people value and have reason to value. They can include quite elementary achievements, such as being safe, well-nourished and literate, or quite complex achievements, such as waging a political campaign for election or performing a classical dance routine exquisitely. Note that by definition functionings are valuable both objectively and to the person concerned. But the fact that they are valuable does not mean that they can be mechanically reduced to a single common denominator, such as happiness. Rather, the capability approach recognises genuinely distinct, plural and incommensurable

⁷ Sen, 1984, Sen, 1987, Sen, 1992a, Sen, 1993, Sen, 1996, Sen, 1997

kinds of human achievements.⁸ They are incommensurable in the sense that no permanent priority or relative weight can be associated with them. The weights quality of life measures apply to different functionings are, therefore, value judgements which reflect the relative importance of each functioning within the set for the purposes of the evaluation (or, in some cases, the relative priority of advancing each functioning at a given time).

Capability refers to a ‘the various combinations of functionings (beings and doings) that the person can achieve. Capability is, thus, a set of vectors [or n-tuples] of functionings, reflecting the person’s freedom to lead one type of life or another... to choose from possible livings’ (Sen, 1992b). Each of our capability set represents ‘the *real opportunity* that we have to accomplish what we value’ (Sen, 1992b). Capability thus captures not only achievements but also unchosen alternatives; it scans the horizon to notice roads not taken. It checks ‘whether one person did have the opportunity of achieving the functioning vector [that is n-tuple] that another actually achieved’ (Sen, 1985). Thus capability is a particularly rich kind of opportunity freedom, and functionings are a wide and flexible category that can be elaborated quite extensively.

The proposal is that quality of life should be considered in the space of capability and functionings (they are the same space). Note that most data are data on achieved functionings rather than capabilities. Fleurbaey points out that there could be good reasons for a quality of life measure to include some achieved functionings (2006) and he as well as others provide several reasons for this. The first is related to equality or inclusion: “if groups differ systematically in the level of achieved functionings, then one may conclude that the members of those groups did not have access to the same capabilities, unless there are plausible reasons why they would systematically choose differently” (Robeyns & van der Veen, 2007) see also (Robeyns, 2003). The second is that for some groups such as the severely disabled, or small children, or people in intensive care, functionings may be the best indicator that we can have. The third is that in many cases adults do not have a capability in isolation and it is in fact quite difficult to measure their capability set, because whether or not they have a capability depends upon choices of their life partner or a neighbor or another actor.

In some cases, information on capabilities may be available directly from household surveys, for example in questions such as ‘do you have/do x ’ – if you do not is that because you do not want x , or because you are not able to obtain/do x ?⁹ Alternatively, data regarding the circumstances of coercion or freedom that accompanied a functioning may be collected and used.¹⁰

The following sections point out some relevant features of the capability approach for quality of life.

⁸ It is quite difficult to aggregate distinct capabilities and functionings into one common measure of utility, as the following example illustrates: “How do we *sum up*, on the basis of some objective measures of intensities, the respective desires for an ice cream, freedom from a headache, writing the most beautiful sonnet ever written, going to bed with one’s favourite film star, and being morally impeccable?” Sen, 1980/81

⁹ A number of authors explore subjective assessments of capability, and questions such as the one above. See for example Robeyns, 2005, Anand & van Hees, 2006

¹⁰ Alkire, 2005

1. *breadth: all intrinsically valued beings and doings*

Rather than focusing only on material functionings, or only on emotional states, the capability approach encompasses all achievements of intrinsic importance: “any achievement that is rooted in the life that one oneself leads (or can lead) rather than arising from other objectives, does have a claim to being directly relevant to one’s standard of living.” Clearly any quality of life measure is likely to have a somewhat narrowed scope for reasons of feasibility. But it is important to acknowledge that the capability approach *per se* does not categorically exclude any intrinsically valued achievements. “It is possible that this way of drawing the line is a little too permissive,” Sen writes, “but the alternatives that have been proposed seem clearly too narrow.”¹¹

Of course any quality of life measure will select certain dimensions or capabilities and exclude others, and we discuss this process below. But the capability approach *itself* does not preselect these lists. Rather, the capability approach is applied differently depending on the purpose of the measure, the place and situation (or, if comparability is required, the places to be compared), the level(s) of analysis, the data available, the institutions it will guide, and the kind of analyses that the measure will catalyze or inform. The methods by which it is applied are, similarly, plural. The concrete purpose of the application provides necessary definition and limitations to the set of relevant capabilities, but the capabilities themselves are not limited to certain dimensions or sectors *a priori*.

2. *applicability: developed and developing countries, poverty or quality of life.*

The choice of capability as a focal space still allows considerable diversity in terms of the kinds of measures that can be pursued. Because of its conceptual breadth, the capability approach can be used to inform measures of extreme poverty and deprivation, as well as to probe situations of affluence and well-being and to investigate inequalities in different spaces. Similarly the approach might equally well focus on what are often called ‘developed’ or ‘developing’ countries or regions, or might seek to identify common variables which could be used for comparisons. Once again, we stress that distinct applications of the approach will give rise to different focal variables and concrete measurement methodologies.

3. *amenable to exploration using different kinds of data and analysis*

Capabilities can be analysed and represented using a plethora of kinds of data, methodologies and techniques. The identification of a space does not foreclose the possibility of using different indicators – including subjective and resource indicators – to better understand quality of life. Capabilities can be analysed using quantitative, qualitative, participatory, and subjective data, using administrative, census, survey, and institutional data. Indeed although a measure might be expected to focus on intrinsically valued outcomes, analyses will seek to uncover the interactions among different capabilities, and identify high leverage variables, which are instrumental to a range of other capabilities.

Unit of Analysis: the person

In Openheimer’s poem, the women describe their own well-being as inextricably connected to the quality of life of men, and indeed with women in past and future generations. “As we

¹¹ Sen, 1987

come marching, marching, we battle too for men, For they are women's children, and we mother them again.” This is not seen as lofty altruism. As a matter of fact the quality of life of one person can hardly be traced in isolation. For this reason, some suggest that the quality of life measures should gauge the achievements of families and social and ethnic groups, rather than of people one by one.

It may seem rather strange, then, that capability approach regards the individual as the fundamental unit of analysis for quality of life measurement. The ‘individual’ focus of the capability approach is regularly misunderstood hence it may be worth pausing on this point for a moment. The capability approach adopts what Robeyns (2008) calls *ethical individualism*, but does *not* adopt other kinds of individualism (to which many, rightly in our view, would object) which she calls *ontological* and *methodological* individualism.

Ethical individualism “postulates that individuals, and only individuals, are the *ultimate* units of moral concern. ... This, of course, does not imply that we should not evaluate social structures and societal properties, but ethical individualism implies that these structures and institutions will be evaluated *in virtue of* the causal importance that they have for individuals’ well-being.” In essence, ethical individualism is appealing because it does not allow the achievements of a group to be celebrated without taking note of deprivations and unfreedoms that certain members of the group may quietly suffer. Of course in many groups advances may be shared equally. But if a society systematically chooses a collective unit of analysis such as the family, the social group, or the community, then assessments of the quality of life will be *systematically* blind to any existing or potential inequalities *within* these units. For example, many resources such as income, or food availability are measured at the household level, and it is presumed that they benefit all members of the household. Unfortunately, the intrahousehold distribution of resources is not always equitable. Household level data are unable to identify households in which women and children do not enjoy an equitable proportion of the household resources; it would require individual level data to do so.

In practical terms, this focus on the person as a unit of analysis could affect not only the kind of data but also the ideal order of aggregation of a quality of life measure. Aggregating first across domains and second across people (when the data allow) has the ethical value of recognising the range of deprivations and achievements each person experiences. Hence it is able to identify those whose lives are devastated by multiple deprivations at the same time and, if the measure is suitably constructed, give priority to them.¹² This order of aggregation also is appealing given empirical evidence that multiple deprivations interact with each other to form poverty traps, which quality of life measures should be sensitive to.

The capability approach does hold the quality of life of each person to be of direct moral interest. However – and this is important – it does not support two other kinds of individualism. The first it does not support is *ontological individualism*, which would hold that “society is built up from only individuals and nothing than individuals, and hence is nothing more than the sum of individuals and their properties.” In contrast, the capability approach

¹² The literature on multidimensional measures of this kind is increasing rapidly. See for example Tsui, 2002, Atkinson, 2003, Bourguignon & Chakravarty, 2003, Alkire & Foster, 2007, Kakwani & Silber, 2008a, Kakwani & Silber, 2008b

often advocates participation, democratic deliberation, and collective action. Explanatory or *methodological individualism*, which again is not implied by the capability approach, presumes “that all social phenomena can be explained in terms of individuals and their properties” (Robeyns, 2008). Sen’s early analysis of famine as a political rather than economic phenomenon broke with methodological individualism.

It is important to stress that although the capability approach takes the person as the ultimate unit of analysis, the capability approach is not individualistic in ‘ontological’ or ‘methodological’ terms – rather, the opposite applies. The process of improving quality of life often requires the sustained collective action of people, and indeed of generations. At an individual level people usually consult, discuss, and negotiate their goals with family and friends, so their very own goals are socially influenced. Beyond this, many capabilities cannot be produced or enjoyed individually, but require cooperation and collective action. Furthermore, institutions, political and public action are vital to create and sustain capabilities of time. Oppenheimer’s poem gestured to the handoff of public action across generations: “As we come marching, marching, unnumbered women dead; Go crying through our singing their ancient cry for bread.” Indeed one of the purposes of measuring quality of life itself might be to encourage constructively impatient social movements to improve the quality of life of others.

Capability, Quality of Life, and Value Judgements

A credible measure of quality of life is a certain type of evaluative exercise. It is both necessary and imperfect. The Commission has identified relevant criteria, including the need to compare different societies (within developed, within developing, across developed and developing), and the need to be sensitive to inequality and to changes across time and between countries. With respect to these criteria, value judgements enter QoL measures in several places, including:

1. In the choice of dimensions
2. In the choice of weights between & within dimensions and across people
3. In the choice of how to address substitutability/complementarity

1. Choice of dimensions

The choice of relevant functionings and capabilities for any quality of life measure is a value judgment rather than a technical exercise. “There is no escape from the problem of evaluation in selecting a class of functionings in the description and appraisal of capabilities, and this selection problem is, in fact, one part of the general task of the choice of weights in making normative evaluation.... The need for selection and discrimination is neither an embarrassment, nor a unique difficulty, for conceptualizing functionings and capabilities.” (Sen 2008).¹³

Though potentially very broad, in practice, the scope of relevant capabilities depends upon the purpose of the evaluative exercise. A credible measure will include dimensions that are of a) *special importance* to the society or people in question, and b) *social influenceability* – which

¹³ As is well known, Nussbaum argues that a list of central human capabilities must be specified for the purpose of constitutional guarantees. Her argument, and Sen’s rejoinder arguing against the creation of *one* list of capabilities in general, can be found in these articles: Nussbaum, 2003, Sen, 2004a.

means that they are an appropriate focus for public policy, rather than a private good, or a capability which cannot be influenced from outside.¹⁴

In practice, groups tend to select dimensions using one or more of the following mechanisms:

- a. The first is a repeated *deliberative or participatory exercise*, which engages a representative group of participants as reflective agents in making the value judgements to select focal capabilities. In a supportive and equitable environment this process seems to be ideal for choosing dimensions; however in many situations participation is riven by conflict or inequality or misinformation, or colored by the absence of certain groups.
- b. The second is the use of a list that has attracted a kind of *enduring consensus* and associated legitimacy, such as human rights, or the Millennium Development Goals (MDGs), or some national planning framework. This is particularly useful when the categories are broad – as required for international comparability for example - or when dimensions must be selected swiftly, without the possibility of consultation.
- c. The third is *theory based*, as in Martha Nussbaum's set of 10 capabilities, or Ryan and Deci's account of the 3 elements of psychological well-being, or (most commonly) the unspecified hunch of the researcher. These are relevant for communities where the theory enjoys widespread approval and/or is consistent with lists generated by alternative theories or processes.
- d. The fourth – *whether the data exist* – is merely a feasibility criterion rather than a substantive process for making the value judgements, but is usually necessary to use in combination with one of the foregoing mechanisms.
- e. A fifth, which is rarely used, generates a list on the basis of *empirical information regarding people's behaviours and preferences* drawn from psychological studies or consumer or marketing surveys.¹⁵

Furthermore, comparing the lists that groups generate by different processes, one finds a striking degree of commonality between them. Hence section II.1 lists common generic fields which pertain to many overlapping but distinct approaches to quality of life.

2. *Choice of weights*

In the capability approach, because capabilities are of intrinsic value, the relative weights on different capabilities or dimensions that are used in society-wide quality of life measures are value judgements. It is important to be clear that weights can represent

- 1) the *enduring importance* of a capability relative to other capabilities or
- 2) the *priority* of expanding one capability relative to others in the next phase.

Considerations of importance are used in long-term enduring and comparative measures of quality of life. In contrast, weights of priority are used to inform immediate policy interventions, and for monitoring and evaluation.

Whether weights are to reflect importance or priority, the value judgements might be made by a number of processes, including participatory exercises. The point is that the weights are to represent a 'reasoned consensus' of the relevant community.

¹⁴ Sen, 2004b.

¹⁵ Alkire 2008.

It is thus crucial to ask, in any evaluative exercise of this kind, how the weights are to be selected. This judgmental exercise can be resolved only through reasoned evaluation. For a given person who is making his or her own judgments, the selection of weights will require reflection rather than interpersonal agreement or a consensus. However, in arriving at an agreed range for social evaluations (e.g. in social studies of poverty), there has to be some kind of a reasoned consensus on weights or at least on a range of weights. This is a social exercise and requires public discussion and a democratic understanding and acceptance. (Sen 1996: 397)

Weights can be applied in three ways in multidimensional poverty measures: i) *between* capabilities and dimensions (the relative weight of nutrition and education), ii) *within* dimensions (if more than one indicator of mobility is used), and iii) *among* people in the distribution, for example to give greater priority to the most disadvantaged. Weights *between* dimensions, being value judgements, may be made by participatory processes or by expert opinion when the circumstances suggest that either would be relatively accurate and free from distortion. Alternatively, weights may be drawn directly from survey questions such as socially perceived necessities, or interpreted using data on subjective evaluations.¹⁶

In practice, weights on indicators that are aggregated *within* dimensions are often set as equal (which is a value judgement), or else the weights are generated by a statistical data-driven process. Weights *among* people, that reflect our considerations of inequality, are often accomplished by using a function of the dimensional variable, rather than the variable itself. For example, a strictly concave function places greater weights on the accomplishments of the most disadvantaged, to reflect the diminishing marginal utility of income or another dimension.¹⁷

It is important to note that the choice of dimensions and of weights *between* dimensions are interconnected. For example dimensions might be chosen such that they were of relatively equal weight. This, indeed, is the recommendation given by Atkinson *et al* (2002) in their work on social indicators in Europe: ‘the interpretation of the set of indicators is greatly eased where the individual components have degrees of importance that, while not necessarily exactly equal, are not grossly different’ (p. 25).

3. *Choice of how to address inequality across the distribution*

Quality of Life indicators, unlike poverty indicators, consider the achievements of the entire population. Because the data cover the entire distribution, there are possibilities that two equivalent measures of human development might arise from two very differently distributed set of achievements among people and dimensions. It may therefore be desirable to construct an index such that it inherently gives greater priority to those having low achievements, or adjusts the index downwards in situations of high inequality. Such considerations will inform the selection of which mean to use – if data are aggregated first across a population – or, if data are aggregated first across domains, the possible application

¹⁶ Papers from a May 2008 workshop on setting weights in the capability approach are available as working papers on www.ophi.org.uk. For example Decanq and Lugo sketch the landscape of statistical and normative approaches to weighting; Fleurbaey and Schokkaert propose the use of subjective weights; Wright discusses the use of socially perceived questionnaires, Dibben *et al* discuss discrete choice experiments, and Clark and Alkire survey mechanisms of setting normative weights.

¹⁷ Foster, *et al.*, 2005

of a ‘sufficiency’ cutoff and attention to the shortfalls from this cutoff, to focus attention on the lowest achievers. Notes on this second option are given in Part II.

4. *Choice of how to address substitutability/complementarity*

Multidimensional measures of quality of life face a number of complexities over and above unidimensional measures. One of these is the fact that the elements of the quality of life are inter-related in a number of ways. Some are causally interrelated. For example, the presence of a higher girls’ education may be likely to cause a lower level of child malnutrition later, when and if the girls become educated mothers. Others are immediately interrelated. For example, if I have a great deal of milk, I may not need very much cheese (Substitutes). Alternatively, if I have rice alone without some form of beans I do not have a complete protein – I can be nourished only if I have both rice and beans; plenty of either one is insufficient (Complements). A debate has arisen how multidimensional measures can reflect the interrelationships among dimensions of substitutability and complementarity. This is particularly difficult because the nature of the relationship may change over time, the elasticity may change, and our ability to understand and model empirically the interrelationships among a large number of dimensions is, as yet, rather imprecise.

Conceptually, the capability approach does have implications for this issue in the following way. If each of the constituent elements of the quality of life measure were chosen such that they are intrinsically valuable capabilities (bread=nutrition, and roses=respect), then what a quality of life measure should represent, fundamentally, is the achievements in each dimension, regardless of their further instrumental value in creating or enhancing achievements in other dimensions.¹⁸ That is, if the dimensions are well specified, it might be reasonable for a measure to be ‘neutral’ rather than suggest either substitution or complementarity among dimensions. Of course there still may be the need to model interconnections among indicators within the dimensions.

Part II: Some concrete reflections

A. DIMENSIONS

Dimensions of human well-being include material and non-material aspects. Many groups have sought to identify dimensions of quality of life, including participatory consultations in many countries, cross-cultural psychology, developmental psychology, mental health, sociology, social indicators, national planning exercises, and basic needs. There is no magic number of dimensions, nor nomenclature for them. The following list contains most regularly mentioned intrinsically-valued dimensions of individual human flourishing or fulfilment which relate to the Commission’s objectives.

1. **HEALTH & SECURITY** health, survival, security, rest, reproductive health
2. **UNDERSTANDING** knowledge, understanding, information & communication
3. **ACHIEVEMENT** meaningful work and play – outside and at home; creativity
4. **PARTICIPATION** democratic practice, voice, empowerment, self-determination

¹⁸ Note that for this approach to make sense the capabilities need to be defined rather generally (the capability to be well-nourished). Hence our example of rice and beans would not arise because in order to create nutrition, naturally, *both* resources would be required.

5. **RELATIONSHIPS** absence of shame/humiliation, love, relatedness, affiliation
6. **SATISFACTION** self integration, emotional well-being, happiness, inner peace
7. **HARMONY** culture and spirituality, art, environment.

Processes

In implementation of any quality of life programme, attention must be given not only to the dimensions of the objective, but equally to the group- or society-wide *processes* by which quality of life is advanced. Processes might seek to advance such principles as distributional equity, participation, transparency, efficiency, non-discrimination, respect for human rights, justice, sustainability across time, relevant flexibility, and coherence and balance among objectives.

B. AGGREGATION MECHANISMS

A Quality of Life measure might be presumed to consider a wider range of dimensions than traditional measures, and to include non-traditional dimensions of well-being. But it might also be presumed to be generated not only to satisfy curiosity – as important and vital as that is – but also to guide policy. In Oppenheim’s poem, the textile workers remembered the non-traditional achievements of previous generations of women, however meagre – of art and love and beauty – and articulated these as goals to ‘fight for’. This might suggest that a quality of life measure is not to be totally an exercise in documentation, but rather is also to inform policies and priorities that balance attention among a range of valued achievements.

If we take this perspective, then an adequate Quality of Life measure:

- must be understandable and easy to describe
- must conform to “common sense” notions of quality of life
- must be able to target the deprived, track changes, and guide policy.
- must be technically solid
- must be operationally viable
- must be easily replicable¹⁹

Many different mechanisms are possible, and an increasing number of new measures are being developed. As requested, presented below is one multidimensional measurement methodology²⁰ that might be used to address the quality of life (and indeed has been adapted for such in Bhutan). It is related to the *user-friendly* ‘counting’ approaches and satisfies a number of desirable *properties*, including decomposability. It is very *intuitive, easy to calculate,* and *adaptable* to different contexts and purposes, in that different dimensions and indicators can be selected depending on the purpose at hand. For example different dimensions might be relevant in different countries. The methodology could also be used within one sector, to represent quality of education, or dimensions of health for example. In addition, different *weights* can be applied to dimensions or indicators. Furthermore *ordinal, categorical, and cardinal* data can all be used. The measure *can be decomposed* by variables such as geographic area or ethnicity, and the quality of life can then be broken down by dimension to *identify which dimensions are driving low achievements* in different regions or groups. This last characteristic

¹⁹ Székely, 2006

²⁰ Alkire & Foster, 2007

makes it a good tool for targeting or for guiding policies to address specific needs of different groups efficiently.

The remainder of this section intuitively describes one possible methodology that aggregates first across dimensions and then across people.²¹ The methodology introduces an explicit equity consideration *among people*. There might be a number of reasons for introducing such a consideration in a quality of life measure – ethical, and/or empirical. One might argue that above a sufficient level, additional achievements do not impact our well-being to the same extent. There are diminishing returns to incremental achievements in capabilities above some sufficiency level. For this reason, rather than considering the entire distribution, a quality of life measure may wish to truncate the distribution above sufficient levels of achievement in each dimension. This would introduce something equivalent to the *focus* axiom in poverty measures. The measure presented does so by applying a cutoff. The easiest way to consider this cutoff is to think of a poverty line. A poverty line distinguishes people who are poor in that particular dimension from those who are non-poor. A multidimensional poverty measure defines people as multidimensionally poor depending upon their range of deprivations in different dimensions. And aggregate multidimensional poverty measures then represent the achievements of those persons who are identified as poor.

The methodology is novel in that it applies what we call a ‘sufficiency’ cutoff. This is set, naturally, at a much higher level than a poverty line, and where it is to be set is a value judgement. A person is identified as having a *sufficient* quality of life if they achieve sufficiency in some range of dimensions. The choice of what this range of dimensions should be is reflected in a second cutoff across the number (or weighted sum) of dimensions. The resulting quality of life measure combines an acknowledgement of the proportion of people who have attained a sufficient quality of life with concern for the range, depth and distribution of deprivations among those who as yet do not enjoy a sufficient quality of life. Because of the equity focus and its aim to inform policy, it is calculated with respect to the persons who have *insufficient* achievements. However, the measure can represent quality of life, obviously, by subtracting the insufficiency achievements from 1 or from 100%.

An intuitive description of the methodology follows.

Step 1: Choose Unit of Analysis. This is most commonly an individual or household, but could also be a community, school, or other unit.

Step 2: Choose Dimensions. The choice of dimensions is discussed above

Step 3: Choose Indicators. Indicators are chosen for each domain on the principles of *accuracy* (using as many indicators as necessary so that analysis can properly guide policy) and *parsimony* (using as few indicators as possible to ensure ease of analysis for policy purposes and transparency). Statistical properties are often relevant.

Step 4: Set cutoffs. A cut-off is set for each dimension – which in this case does not reflect ‘poverty’ but rather reflects the point at which a person or household might be considered to have ‘sufficient’ achievements in each dimension. Thresholds can be tested for robustness, and multiple sets of thresholds can be used (e.g. sufficiency and poverty).

²¹ A methodological guide is available on www.ophi.org.uk.

Step 5: Apply cutoffs. This step identifies every person (or household) as having sufficient achievements, or less than a full quality of life, with respect to each dimension. Persons who have sufficient are given the cutoff-level of achievement.

Step 6: Count the number of insufficient achievements for each person or other unit of analysis (equal weights among indicators are assumed for simplicity, however general weights can be applied in which case the weighted sum is calculated.)

Step 7: Set a second cut-off, which we call k . Assuming equal weights k reflects the number of dimensions in which a person must have insufficient achievements in order to be considered to have a less than full quality of life. Robustness checks can be performed across all values of k (Batana 2008).

Step 8: Apply cut-off. The information of persons who have sufficient range of achievements are now censored in the same way as above, by giving them a zero value. This focuses the subsequent analysis on those who do not have a sufficient quality of life.

Step 9: Calculate the Headcount, H . (the number of less than full quality of life people divided by the population). The multidimensional headcount is useful. For example subtracting the headcount from 1 gives the proportion of people in a society who are judged to have a sufficient quality of life. However this proportion does not change if the people who do not have sufficient achievements become relatively more (or less) deprived; also it cannot be *broken down* by dimension, to analyse how quality of life differs among groups. For that reason we need a different set of measures.

Step 10: Calculate the Average Gap, A . A is the average number of dimensions in which a person who does not enjoy a sufficient quality of life is deprived. It is calculated by adding up the proportion of dimensions in which the each person has insufficient achievements and dividing by the total number of persons with less than full quality of life.

Step 11: Calculate the Adjusted Headcount, M_0 . If the data are ordinal, multidimensional quality of life is measured by the Adjusted Headcount, M_0 , which is calculated as H times A . The headcount is multiplied by the ‘average’ number of insufficient achievements endured by all people who do not have a sufficient quality of life. This reflects the *breadth* of deprivations among those who do not enjoy sufficient quality of life. Subtracting this from 1 gives an arguably more robust indicator of the quality of life.

Step 12: Decompose by group, and break down by dimension. The adjusted headcount M_0 can be decomposed by population subgroup (region, rural/urban, ethnicity, etc). After constructing M_0 for each subgroup of the sample, we can further break M_0 apart to study the contribution of each dimension to overall insufficient quality of life. The adjusted headcount M_0 is useful for several reasons:

- It can be decomposed by different groups in the population
- Overall quality of life increases if one or more persons who had insufficient quality of life achieves sufficiency in an additional dimension, so it is sensitive to the multiplicity of people’s achievements.
- It can be broken down to reveal what dimensions contribute the most to insufficiencies in quality of life in any given region or population group.

Related Multidimensional Measures: Calculate the Adjusted Gap (M_1), and Squared Gap (M_2). If at least some data are cardinal, replace the ‘1’ for each deprived person by their normalized shortfall (the cutoff minus their achievement divided by the cutoff value), and calculate the *average normalized gap* G , which is the sum of the values of the gaps, divided by the number of gaps (in the case of ordinal data, the poverty gap will always be 1). The Adjusted Gap M_1 is

given by HAG , or the M_0 measure above multiplied times the average gap. The M_2 may also be calculated by squaring each gap individually, and replacing G with the severity S , where S is the sum of the individually squared normalized gaps divided by the number of persons who do not have full quality of life, so the measure is HAS .

This section introduced a new methodology for multidimensional Quality of Life measurement consisting of (i) a dual cutoff identification method that identifies sufficiency both in terms of achievements in each dimension, and achievements across a range of dimensions and (ii) a measure that satisfies a range of desirable properties including decomposability. Depending where the cutoffs are set, this multidimensional measure and others like it may be used for reporting quality of life or for poverty. The measure seems to be *understandable and easy to describe*, because it relies on a cutoff and a 'counting' approach which is widely used in policy already. It can reflect "*common sense*" notions of quality of life in that the choice of dimensions, and cutoffs, are open for specification according to the population(s) or society(ies) under consideration. However unlike other quality of life measures, this measure is specifically geared not just to notice incremental changes over time, but also to *target the deprived, track changes, and guide policy*. This is because the measure is actually developed by considering the sector of the population who does *not* enjoy a sufficient quality of life at present. It is *technically solid*, enjoying properties of decomposability, and being valid for ordinal data. The total simplicity and transparency of the measure makes it *operationally viable* and *easily replicable*. So fundamentally, it might be of use to women in men in this generation, who like the textile workers, might tell us, "*Yes, it is bread we fight for -- but we fight for roses, too!*"

22 September 2008

*As we come marching, marching in the beauty of the day,
A million darkened kitchens, a thousand mill lofts gray,
Are touched with all the radiance that a sudden sun discloses,
For the people hear us singing: "Bread and roses! Bread and roses!"*

*As we come marching, marching, we battle too for men,
For they are women's children, and we mother them again.
Our lives shall not be sweated from birth until life closes;
Hearts starve as well as bodies; give us bread, but give us roses!*

*As we come marching, marching, unnumbered women dead
Go crying through our singing their ancient cry for bread.
Small art and love and beauty their drudging spirits knew.
Yes, it is bread we fight for -- but we fight for roses, too!*

*As we come marching, marching, we bring the greater days.
The rising of the women means the rising of the race.
No more the drudge and idler -- ten that toil where one reposes,
But a sharing of life's glories: Bread and roses! Bread and roses!*

Cited References:

- Alkire, S. (2005). Subjective quantitative studies of human agency. *Social Indicators Research*, 74(1), 217-260.
- Alkire, S., & Foster, J. (2007). Counting and Multidimensional Poverty Measures. *OPHI working paper series*(7).
- Anand, P., & van Hees, M. (2006). Capabilities and achievements: an empirical study. *Journal of Socio-Economics*, 35(2), 268-284.
- Atkinson, A. B. (2003). Multidimensional deprivation: Contrasting social welfare and counting approaches. *Journal of Economic Inequality*, 1(1), 51-65.
- Atkinson, A. B., B. Cantillon, Marlier, E., & B.Nolan. (2002). *Social Indicators: The EU and Social Inclusion*. Oxford: Oxford University Press.
- Biswas-Diener, R., & Diener, E. (2001). Making the best of a bad situation: satisfaction in the slums of Calcutta. *Social Indicators Research*, 55(:3), 329.
- Bourguignon, F., & Chakravarty, S. R. (2003). The measurement of multidimensional poverty. *Journal of Economic Inequality*, 1(1), 25-49.
- Burchardt, T. (2003). Identifying adaptive preferences using panel data: subjective and objective income trajectories *3rd conference on Capabilities*. Pavia, Italy.
- . (2005). Are one man's rags another man's riches? Identifying adaptive expectations using panel data. *Social Indicators Research*, 74(1), 57-102.
- Cookson, R. (2005). QALYs, and the capability approach. *Health Economics*, 14(8), 817-829.
- Diener, E. (1995). A value-based index for measuring national quality of life *Social Indicators Research* 36, 107-127.
- . (2000). Subjective well-being - The science of happiness and a proposal for a national index. *American Psychologist*, 55(:1), 34-43.
- Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of nations. *Journal of Personality and Social Psychology*, 69, 851-864.
- Diener, E., & Seligman, M. (2004). Beyond money: towards an economy of well-being. *Psychological Science in the Public Interest*, 5(1), 1-31.
- Diener, E., & Suh, E. (1997). Measuring quality of life: Economic, social, and subjective indicators. *Social Indicators Research*, 40(1-2), 189-216.
- Diener, E., & Suh, E. M. (2000). *Culture and Subjective Well-Being*. Cambridge, Mass: MIT Press.
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125(2), 276-302.
- Fleurbaey, M. (2006). Capabilities, functionings and refined functionings. *Journal of Human Development*, 7, 299-310.
- Foster, J., Lopez-Calva, L., & Szekely, M. (2005). Measuring the distribution of human development: Methodology and an application to Mexico. *Journal of Human Development*, 6(1), 5-29.
- Frey, B., & Stutzer, A. (2001). *Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*. Princeton: Princeton University Press.
- Frey, B. S., & Stutzer, A. (1999). Measuring preferences by subjective well-being. *Journal of Institutional and Theoretical Economics-Zeitschrift Fur Die Gesamte Staatswissenschaft*, 155(4), 755-778.

- . (2002). What can economists learn from happiness research? *Journal of Economic Literature*, 40(2), 402-435.
- Grewal, I., Lewis, J., Flynn, T. N., Brown, J., Bond, J., & Coast, J. (2006). Developing attributes for a generic quality of life measure for older people: preferences or capabilities? . *Social Sciences and Medicine*(62), 1891-1901.
- Kahneman, D., Diener, E., & Schwarz, N. (1999). *Well-Being: The Foundations of Hedonic Psychology*. New York :: Russell Sage Foundation.
- Kahneman, D., & Krueger, A. B. (2006). Developments in the measurement of subjective well-being. *Journal of Economic Perspectives*, 20(1), 3-24.
- Kahneman, D., Krueger, A. B., Schkade, D., Schwarz, N., & Stone, A. (2004). Toward national well-being accounts. *American Economic Review*, 94(2), 429-434.
- Kakwani, N., & Silber, J. (2008a). *The Many Dimensions of Poverty*. Basingstoke: Palgrave MacMillan.
- . (2008b). *Quantitative Approaches to Multidimensional Poverty Measurement*. Basingstoke: Palgrave Macmillan.
- Kenny, C. (2005). Does Development Make You Happy? Subjective Wellbeing And Economic Growth In Developing Countries. *Social Indicators Research*, 73(2), 199-219.
- Kingdon, G. G., & Knight, J. B. (2006). Subjective Well-Being Poverty versus Income Poverty and Capabilities Poverty? *Journal of Development Studies*, 42(7), 1199–1224.
- Layard, R. (2005). *Happiness: Lessons from a New Science*. London: Penguin.
- Ng, Y.-K. (1997). A case for happiness, cardinalism, and interpersonal comparability. *Economic Journal*, 107(445), 1848-1858.
- . (2003). From preference to happiness: towards a more complete welfare economics. *Social Choice and Welfare*, 20, 307-350.
- Nussbaum, M. (2001). Adaptive preferences and women's options. *Economics and Philosophy*, 17, 67-88.
- . (2003). Capabilities as Fundamental Entitlements: Sen and Social Justice. *Feminist Economics*, 9(2/3), 33-59.
- Oswald, A. J. (1997). Happiness and economic performance. *Oxford Labour Market Consequences of Technical and Structural Change Discussion Paper*, 107, 1815-1831.
- Qizilbash, M. (1997). A Weakness of the capability approach with respect to gender justice. *Journal of International Development*, 9(2), 251-262.
- Rawls, J. (1971). *A theory of justice*. Cambridge, Mass.: Belknap Press of Harvard University Press.
- . (1993). *Political liberalism*. New York :: Columbia University Press.
- Rawls, J., & Kelly, E. (2001). *Justice as fairness : a restatement*. Cambridge, Mass.: Harvard University Press.
- Robeyns, I. (2003). Sen's Capability Approach and Gender Inequality: Selecting Relevant Capabilities. *Feminist Economics*, 9, 61-92.
- . (2005). Assessing Global Poverty and Inequality: Income, Resources, and Capabilities. *Metaphilosophy*, 36(1), 30-49.

- . (2008). Sen's capability approach and feminist concerns. In F. Comim, M. Qizilbash & S. Alkire (Eds.), *The capability approach: concepts, measures and applications*. Cambridge: Cambridge University Press.
- Robeyns, I., & van der Veen, R. (2007). Sustainable quality of life: conceptual analysis for a policy-relevant empirical specification: Netherlands Environmental Assessment Agency (MNP).
- Sen, A. K. (1980/81). Plural Utility. *Proceedings of the Aristotelian Society*, 81, 193-215.
- . (1984). The Living Standard. *Oxford Economic Papers*, 74-90.
- . (1985). Well-being, agency and freedom: the Dewey lectures 1984. *The Journal of Philosophy*, 82(4), 169-221.
- . (1987). The standard of living. In G. Hawthorn (Ed.), *The Standard of Living* (pp. 1-38). Cambridge: Cambridge University Press.
- . (1989). Development as capability expansion. *Journal of Development Planning*, 19, 41-58.
- . (1992a). *Inequality Re-examined*. Oxford: Clarendon Press.
- . (1992b). *Inequality reexamined*. New York, Cambridge, MA: Russell Sage Foundation. Harvard University Press.
- . (1993). Capability and Well-being. In M. Nussbaum & A. Sen (Eds.), (pp. 30-53). Oxford: Clarendon Press.
- . (1996). On the foundations of welfare economics: utility, capability and practical reason. In F. Farina, F. Hahn & S. Vannucci (Eds.), *Ethics, Rationality, and Economic Behaviour*, Oxford (pp. 50-65). Oxford: Clarendon Press.
- . (1997). *On economic inequality with a substantial annexe with James Foster 'After a quarter century'* (2nd Edition ed.). Oxford: Clarendon Press.
- . (1999). *Development as freedom* (1st ed.). New York: Knopf Press.
- . (2004a). Capabilities, Lists, and Public Reason: Continuing the Conversation. *Feminist Economics*, 10(:3), 77-80.
- . (2004b). Elements of a theory of human rights. *Philosophy and Public Affairs*, 234, 315-356.
- . (2008). The economics of happiness and capability. In L. Bruni, F. Comim & M. Pugno (Eds.), *Capability and Happiness*. New York: Oxford University Press.
- Székely, M. (Ed.). (2006). *Números que mueven al mundo: La medición de la pobreza en México*. México: Miguel Ángel Porrúa.
- Tsui, K. (2002). Multidimensional poverty indices. *Social Choice & Welfare*, 19, 69-93.
- Van Praag, B., & Ferrer-i-Carbonell, A. (2004). *Happiness Quantified: A Satisfaction Calculus Approach*. Oxford: Oxford University Press.
- Veenhoven, R. (2002). Why social policy needs subjective indicators. *Social Indicators Research*, 58, 33-45.
- Zaidi, A., & Burchardt, T. (2005). Comparing Incomes when Needs Differ: Equivalization for the Extra Costs of Disability in the UK. *Review of Income and Wealth*, 51(1), 89-114.