

# *The capabilities approach*

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## ABSTRACT

Capabilities and functionings are new and attractive concepts for assessing the well-being and advantage of individuals. Functionings refer to a person's achievements, i.e. what she manages to do or to be. Capabilities refer to her real opportunities and incorporate the idea of freedom. We discuss how recent theoretical and empirical work has improved our insights in some of the key questions of the approach. How to measure opportunities and how to balance freedom and responsibility? How to formulate a list of capabilities which can be used to analyse changes over time and differences between different societies without being open to manipulation? How to construct an overall index of well-being and what should be the relative role of a priori ethical evaluations and of the opinions of the individuals themselves? What is the relationship between measures of well-being and advantage at the individual and at the aggregate level? To make further progress it is crucial, *first*, to estimate structural models with individual data, analysing the link between individual achievements, the socioeconomic and environmental background of the persons concerned and the specific features of the individual processes of choice and decision-making; and, *second*, to integrate the insights from these models in a coherent ethical framework specifying the role of individual preferences and the limits of personal responsibility.

Keywords: capabilities, opportunities

## 1. Introduction

The origins of the capabilities approach within welfare economics are to be found in a series of influential papers and monographs, written by Amartya Sen in the early eighties of the previous century (Sen, 1980, 1985a; Sen et al., 1987). He developed and discussed the approach further in some widely read books (Sen, 1992, 1999; Nussbaum and Sen, 1993). The basic purpose of the approach is neatly summarized in the preface to the seminal monograph “Commodities and capabilities”: “...to present a set of interrelated theses concerning the foundations of welfare economics, and in particular about *the assessment of personal well-being and advantage*” (Sen, 1985a, my italics). At first sight, this may seem a purely descriptive exercise. However, normative considerations were crucial from the very beginning. The introduction of the capabilities idea was meant to be an answer to the question: “Equality of what?” (Sen, 1980). The basic idea is to find a definition of personal well-being and advantage that can be used in a meaningful way as the equalisandum for an egalitarian policy (or, in a less egalitarian approach, as the basic concern for policy-makers).

Sen’s answer to the question “Equality of what” introduces two basic notions. What matters to define well-being are the *functionings* of a person, i.e. her achievements: what she manages to do or to be (being well-nourished, well-clothed, mobile, taking part in the life of the community). According to him, however, more important than well-being is the advantage of the person, i.e. her real opportunities. These are called *capabilities*. These ideas were not new.<sup>1</sup> Moreover, the basic intuitions captured by the ideas of functionings and capabilities are closely related to the multidimensional approaches to the quality of life and to deprivation, which were prominent in the social sciences, long before Sen introduced his concepts in the early eighties of the previous century.<sup>2</sup> Yet, it is undoubtedly true that the growing acceptance of these ideas within (welfare) economics started with the seminal contributions of Sen. He was the first to translate the intuitions about multidimensional measurement of quality of life into the language of welfare economics, comparing them explicitly to traditional economic concepts such as income and utility. Moreover, he related the

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<sup>1</sup> Basu and Lopez-Calva (forthcoming) give a brief sketch of the history of the ideas, linking it to Aristotle, Marx, Berlin, Smith and Rawls.

<sup>2</sup> Cummins (1996) covers 1,500 articles related to multidimensional approaches to quality of life, in an attempt to check his own definition of relevant domains.

discussion about “equality of what” in a coherent way to the informational approach to social welfare functions and to the growing discussions about the limitations of welfarism.

The influence of the idea of capabilities soon went far beyond welfare economics and even far beyond economics. It became the inspiration for a large multidisciplinary effort to understand better the ideas of “well-being” and freedom and their relation to development.<sup>3</sup> This growing popularity has (unavoidably) gone together with a proliferation of the number of possible interpretations. The discussion now brings together analytical welfare economists, exploring more deeply the framework introduced in Sen (1985a), as well as critical scientists who identify themselves as heterodox economists and are keen to reject mathematical or even analytical approaches as being overly restrictive. One strand of the empirical work aims at developing quantitative techniques to measure functionings and capabilities, another strand advocates the implementation through participative focus groups. In fact, the whole framework is often presented as a broad framework of thought rather than as a sharp analytical tool (Robeyns, 2006a). It is difficult to evaluate this whole movement. I will therefore be much less ambitious and go back to the starting point: how do the ideas of functionings and capabilities contribute to the welfare economic debate about “equality of what”? How does the growing experience with empirical applications contribute to a better understanding of the basic methodological issues? And what questions have remained open until now? After a brief overview of the main concepts in section 2, I will discuss various methodological issues in the sections 3 to 6. In each case I will try to confront the theoretical challenges with the available empirical experience. Section 7 concludes.

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<sup>3</sup> There is now even a successful “Human Development and Capability Association”. Launched in September 2004, it aims at “promoting research from many disciplines on key problems including poverty, justice, well-being, and economics.” The Association has its own journal (Journal of Human Development) and an already impressive membership.

## 2. Equality of what? Capabilities as a way of assessing individual advantage

The well-being of a person has to be evaluated on the basis of what he or she manages to do or to be. These “functionings” have to be distinguished from the commodities, which are used to achieve them, because personal features matter a lot in the transformation from objective characteristics of the commodities to functionings. The nutritional value of food depends on the biological characteristics of the body; books do not contribute much to the personal development of persons who were never taught to read. Because a focus on the possession of material commodities neglects these crucial interindividual differences, it is not acceptable as a description of well-being.

Sen (1985a) gives a first and very useful formalization of these concepts. The achieved functionings vector  $b_i$  of individual  $i$  can be written as

$$(1) \quad b_i = f_i(c(x_i))$$

where  $x_i$  is the vector of commodities possessed by person  $i$ ,  $c(\cdot)$  is the function converting the commodity vector into a vector of objective characteristics and  $f_i(\cdot)$  is a personal utilization function of  $i$  reflecting one pattern of use that  $i$  can actually make. While the  $c(\cdot)$  function has to be interpreted in the Gorman (1956)-Lancaster (1966) tradition and is independent of the individual concerned, the transformation of these characteristics into functionings is individual-specific. The well-being of person  $i$  can then be seen as the valuation of the vector of functionings  $b_i$ :

$$(2) \quad v_i = v_i(f_i(c(x_i)))$$

Sen emphasizes that the valuation function  $v_i(\cdot)$  can represent a partial ordering.

The interpretation of  $v_i(\cdot)$  is crucial. If we interpret the valuation exercise as objective and the same for all individuals, we could drop the individual subscript. If we introduce the possibility of interindividual differences and therefore keep the subscript,  $v_i(\cdot)$  is formally similar to a utility function  $u_i(x_i)$ , since it can also be seen as the representation of a (possibly partial) ordering of commodity bundles  $x_i$ .

However, in Sen's view it is necessary to distinguish the valuation of functionings vectors from the utility derived from it. He distinguishes different possible interpretations of utility:

(a) the first defines utility on the basis of "revealed preference" and choice. This is the most popular approach in modern welfare economics but it is really a non-starter. The assumption that choices are only motivated by personal well-being is heroic. Moreover, as is well known, the revealed preference-approach cannot easily accommodate interpersonal comparisons of well-being. Yet such interpersonal comparisons are indispensable for the purpose of defining an acceptable equalisandum.

(b) the second and the third interpretation are closely related and are situated in the traditional utilitarian interpretation: one interprets utility as subjective happiness (pleasure and pain), the other as the extent to which desires are fulfilled. As representations of well-being they both entail similar problems. The first problem is what Sen calls "physical-condition neglect": utility is only grounded on the mental attitude of the person, and does not sufficiently take into account the real physical conditions of the person. This has two aspects. One is the issue of expensive tastes, the other is that persons may adapt to their objective circumstances or realistic expectations: "A person who is ill-fed, undernourished, unsheltered and ill can still be high up in the scale of happiness or desire-fulfillment if he or she has learned to have 'realistic' desires and to take pleasure in small mercies" (Sen, 1985a, p. 21). The second problem is "valuation neglect". Valuing a life is a reflective activity in a way that 'being happy' or 'desiring' needs not be (Sen, 1985a, p. 29). An acceptable approach to well-being should explicitly take into account this valuational activity by the persons themselves. This is not to say that "happiness" or "desire-fulfillment" cannot be important components of well-being. But they are only part of the story. The most adequate way of taking them into account is to see them as elements of the vector  $b_i$ .

In a further step, Sen claims that a description of the individual living standards in terms of achievements is not sufficient, because one has also to introduce the notion of freedom. He therefore proposes the concept of the advantage of a person, i.e. his or

her real opportunities. The person can choose the utilization function  $f_i(\cdot)$  from an individual-specific set  $F_i$ . If we moreover assume that his choice of commodity vectors is restricted to his “entitlements”  $X_i$ , we can represent his real freedom by the set of feasible functioning vectors

$$(3) Q_i(X_i) = [b_i | b_i = f_i(c(x_i)), \text{ for some } f_i \in F_i \text{ and for some } x_i \in X_i]$$

$Q_i$  can then be called the “capabilities” of person  $i$ . Sen is quite explicit about the importance of the move from functionings to capabilities. The typical example is the comparison between two individuals who both are undernourished. For the first individual, the undernourishment is the result of his material deprivation. The second individual is wealthy, but freely decides to fast for religious reasons. While their achievements in terms of the nutritional functioning are identical, it seems clear that their situations are not equivalent from an egalitarian point of view.

Equalization of capabilities goes beyond equalization of opportunities in the narrow sense of the word and also beyond removal of discrimination, although both are important elements of it. Capabilities are a reflection of the real (positive) freedom of individuals, and should not be restricted to the securing of negative freedoms. Persons should not only have the legal right to provide themselves with food, they should also have the economic possibilities to do so. Although Sen emphasizes the importance of freedom, his approach is definitely not contractarian but remains firmly consequentialist (Sugden, 1993).

The capabilities approach is not a complete theory of justice. Although the writings of people using it have an outspoken egalitarian flavor, in principle it can be integrated in many different theories. One can formulate a concave social welfare function in terms of individual capabilities levels. But functionings can also be the outcome measure used in the theory of equality of opportunity as introduced by Roemer (1998) or in theories of responsibility-sensitive egalitarianism (Fleurbaey and Maniquet, forthcoming). It is possible to trade off considerations of well-being or advantage for other dimensions (such as respect for political rights or for property rights). In all these cases, the specific application will depend on the exact content given to the

functionings or capabilities themselves, which remains very open. Rather than a theory of justice, the capabilities approach is a proposal for the evaluative space which should be used for policy purposes.

It still may have some direct implications for policy issues. Take the issue of relative versus absolute poverty (Sen, 1983).<sup>4</sup> Introducing the idea of capabilities suggests an approach in which poverty is absolute in the space of capabilities, but relative in the space of resources and commodities. While a functioning such as social integration (being able to appear in public without shame) has an absolute core because it is important in all societies and at all times, at the same time the commodities needed to realize this functioning will be widely different in different societies and at different times. Relative deprivation in the space of commodities can go together with absolute deprivation in the space of capabilities (or functionings).

Since the mid eighties there have been many empirical studies trying to implement this theoretical framework. Some of them are at the country level. Already in Sen (1985a) one important example was a comparison of the performance of India, Sri Lanka and China. Since then, the most influential application is undoubtedly the Human Development Index, used by the UNDP to measure the well-being of countries in terms of adjusted GDP per capita, life expectancy at birth and educational performance. Closer to the original intuition of the approach – which is to measure poverty and well-being at the individual level – are studies with individual data. These include among others (and in chronological order) Schokkaert and Van Ootegem (1990), Lovell et al. (1994), Balestrino (1996), Ruggeri Laderchi (1997), Brandolini and D’Alessio (1998), Chiappero Martinetti (2000), Klasen (2000), Phipps (2002), Qizilbash (2002), Anand et al. (2005a, 2005b), Kuklys (2005), Lelli (2005), Qizilbash and Clark (2005), Ramos and Silber (2005), Zaidi and Burchardt (2005), Anand and van Hees (2006), Robeyns (2006b), Lelli (forthcoming). The list is far from complete and the number of available studies is rapidly growing.<sup>5</sup>

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<sup>4</sup> The somewhat personalized exchange of ideas between Townsend (1985) and Sen (1985b) following this article shows that the approach is definitely not empty.

<sup>5</sup> The website of the Human Development and Capability Association ([www.capabilityapproach.com](http://www.capabilityapproach.com)) contains a regularly updated overview of the empirical work.

Although these studies are very diverse, two important conclusions can nevertheless be drawn. The first is a positive one. There is by now overwhelming empirical evidence that the multidimensional approach adds something to the traditional approaches in terms of GDP or income. The ranking of countries on the basis of multidimensional well-being is strikingly different from the ranking on the basis of GDP per capita. The second conclusion is more tentative. Many of the earlier empirical studies were only loosely connected to the theoretical framework and only recently has empirical work sought to operationalise directly some of the key distinctive parts of the approach. Furthermore, a number of lists of functionings and capabilities have been proposed and this has made it difficult for researchers to settle on a particular set of dimensions with which to measure welfare or deprivation. In any case, more work is needed to bridge the gap between the theory and the empirical applications. More specifically, it is striking that there is almost no empirical research using a full explanatory model, which specifies the relationship between achieved functionings and capabilities and explores how achievements are influenced by psychological characteristics and by features of the external and social environment.<sup>6</sup> Estimation of such a structural model of behaviour would make it possible to go beyond a mere descriptive exercise and could give a better insight into the (perceived) trade-offs between the different capabilities.

Recent advances on the theoretical side suggest that there are no straightforward answers to the methodological challenges raised by the empirical work. The analytical questions raised in Sen (1985a) are not yet answered in a fully satisfactory way and important new questions have arisen.<sup>7</sup> In section 3 I will discuss the issues of freedom, responsibility, functionings and capabilities. In section 4 I will describe and compare different ways of selecting the elements of the functionings vector. Section 5 will be devoted to the indexing problem, i.e. the operationalisation of the function  $v_i(\cdot)$  and the differences with a utility function. Finally, in section 6, I summarize some recent findings concerning the aggregation problem, i.e. the measurement of capabilities at the country level. The need to think in terms of a complete structural model will be a thread throughout my discussion.

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<sup>6</sup> Kuklys (2005) contains a structural model, estimated with individual data. Krishnakumar (2007) works with data at the country level.

<sup>7</sup> I do not claim any originality for this list of issues. They were present in the debate about the capabilities approach from the very start. See also Robeyns (2006a).

### 3. Capabilities, functionings, and responsibility

Voluntarily fasting and starving as a result of economic deprivation are obviously not equivalent from a policy point of view. Sen's argument that we should go beyond functionings to introduce considerations of freedom is a strong one. The real question is: how to do this? In this respect it is important to note that Sen from the very beginning and throughout his work has pointed out that defining capabilities in terms of opportunity sets, is not the only possible way to incorporate freedom into the analysis. An alternative is to work with what he calls "refined functionings" or comprehensive outcomes, where the "refinement" refers to the operation of taking note of the alternatives available or of the process of choice itself. Consider again the fasting-starving example. The faster is choosing to eat less; the poor starving person is exercising no choice at all. These can be seen as two different "refined" functionings – choosing A when B is also available is a different refined functioning from choosing A when B is not available (Sen et al., 1987, pp. 36-37). Or, one could consider, in addition to the functioning of being well-nourished or not, another functioning "exercising choice with respect to what one eats". Again, the description of the situation of the faster and the starver would be different. In this section I will compare these two approaches: on the one hand the "opportunity set" approach, on the other hand the "refined functionings" approach. I will first discuss three conceptual and ethical points raised by the move from functionings to opportunity sets (as in eq. (3)) and then turn to the issue of application.

The first issue was discussed already extensively in Sen (1985) and relates to the fact that to evaluate capabilities as in (3), it is necessary to evaluate sets. Call  $X$  the set of feasible bundles of functionings and let  $Z$  be the set of all nonempty subsets of  $X$ . Let  $\succeq$  be a reflexive and transitive binary relation defined over  $Z$ . For  $Q, R \in Z$ ,  $Q \succeq R$  is to be interpreted as "the degree of freedom offered by  $Q$  is at least as great as the degree of freedom offered by  $R$ ". The asymmetric and symmetric factors of  $\succeq$  are denoted by  $\succ$  and  $\approx$  respectively. In some cases, ranking opportunity sets in terms of freedom seems easy. A two-dimensional example is shown in Fig. 1a: since  $Q \subset R$ , it is straightforward to say that  $R \succeq Q$ . The more difficult question is, however, depicted in

Fig. 1b. How to compare the degree of freedom in  $Q$  and  $R$  in that situation? One possible approach would be to define the value of a set of functioning vectors by the value of the best element in that set. Sen (1985) calls this method “elementary evaluation” but immediately acknowledges that it does not do justice to the basic idea of freedom – indeed, removing from a set all but the best alternatives, would in this case not reduce its value. Suppose that  $a$  and  $b$  are the “best” elements in  $Q$  and  $R$  respectively, and that we conclude that  $Q \succeq R$  because  $a$  is better than  $b$ . Would we then be willing to conclude that  $\{a\} \succeq R$ , i.e. that the (no-choice) singleton  $\{a\}$  offers at least as much freedom as  $R$  (see Fig. 1c)? Moreover, how to define the “best” element?

*Figure 1 about here*

Moving beyond elementary evaluation, however, raises some tricky issues. The problems are illustrated in a striking way in the influential article by Pattanaik and Xu (1990). They assume that  $X$  is finite and introduce the following properties of  $\succeq$  :

*Indifference between no-choice situations (INS).* For all  $a, b \in X$ ,  $\{a\} \approx \{b\}$ .

*Strict monotonicity (SM).* For all distinct  $a, b \in X$ ,  $\{a, b\} \succ \{a\}$ .

*Independence (IND).* For all  $Q, R \in Z$  and for all  $a \in X - (Q \cup R)$ ,  $[Q \succeq R \text{ iff}$

$$Q \cup \{a\} \succeq R \cup \{a\}].$$

They then show that  $\succeq$  will take the very naive form of a cardinality-based ordering if and only if it satisfies INS, SM and IND, where the cardinality-based ordering simply ranks two sets on the basis of the number of elements in the sets, a bigger set being ranked higher than a smaller set. Although the axioms look rather innocuous, this is a surprising and disappointing result. In his reply, Sen (1990) immediately pointed to the main problem with this approach: it does not at all take into account the “quality” of the alternatives in the set. In one way or another, we have to introduce preferences in the analysis. The problems already start with the axiom INS. Sen considers the situation of a person who wishes to go home from the office by taking a short walk. He then describes two alternatives: (1) she can hop on one leg to home, but she is not

permitted to walk; (2) she can walk normally to home, but she is not permitted to hop on one leg. Given that she vastly prefers to walk, it is strange to claim (as INS does) that she has no less freedom when she is forced to hop. Yet, as soon as one introduces preferences, a new series of questions pops up: do we take into account actual preferences of the individual or the preferences that may emerge in the future with some positive probabilities or the preferences that a reasonable person in that situation can possibly have? And should we in this case consider subjective preferences or cognitive valuations? These deep philosophical issues are not yet settled in the growing literature on the topic.<sup>8</sup> The problem of the evaluation of opportunity sets remains open.

Can we avoid it through the use of (refined) functionings? I suggested already that the famous fasting/starving distinction can be taken care of in a satisfactory way. Fleurbaey (2005a) extends this idea and argues that all the relevant aspects of freedom can be captured through functionings. Basic freedoms of thought, speech, political activity, travel, etc. are obviously part of the functioning vector and the same is true for the freedom to have economic activities. The (crucial) distinction between formal and real freedoms can be made operational by considering the individual achievements in terms of education, income and social relations. The freedom from avoidable disease can be approximated in terms of the achieved health functioning, of the accessibility of the health care system and of the environmental and social factors influenced by public health policy. The examples immediately show that the refined functionings approach also raises difficult challenges. Understanding the “process of choosing” is not straightforward. As soon as one has to resort to indirect indicators (such as education, income, social relations, accessibility of the health care system), one has to think carefully about the specific social, environmental and individual variables that determine the influence of these indicators. In moving from “capability sets” to “refined functionings”, we move from the problem of evaluating sets to the problem of investigating carefully the process of “producing” refined functionings. To make progress on these issues, the construction of better structural models of choice behaviour is badly needed.

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<sup>8</sup> See Barberà et al. (1998) for an overview of the literature.

The second issue relates to the question whether it is sufficient to look at capability sets or whether on the contrary we also have to consider achievements in addition to capabilities (Fleurbaey, 2005, 2006). Consider the situation of two persons with the same opportunity set  $R$  in Fig. 1a: from the point of view of capabilities their situation is equivalent. However, the first ends up with the achieved functionings vector  $b$ , and the other with the vector  $c$ . Would we claim that from an ethical point of view, their situations are equivalent? The answer can only be yes, if one takes a pure ex ante point of view and holds the persons fully responsible for the choices they make within their opportunity set  $R$ . Or, consider the perhaps even more difficult situation where one individual picks the achievement functionings vector  $c$  from the set  $R$ , while the other picks achievement  $a$  from  $Q$ . There is now a direct conflict between the evaluations of the sets (remember that this was the case where  $R \succeq Q$ ) and the evaluation of the outcomes ( $a$  vector-dominates  $c$ ). Note that it is quite important in the justification of the capabilities approach that individuals do not necessarily choose within their opportunity set the functioning vector that would give them the highest level of individual well-being.

As Fleurbaey (2006) emphasizes, it is certainly true that limiting our attention to sets and neglecting achievements, leads to a loss of information. Comparing  $\{R, c\}$  to  $\{Q, a\}$  is not equivalent to comparing  $Q$  and  $R$  (or, for that matter,  $a$  and  $c$ ). Moreover, at a deeper level, the pure ex ante-evaluation on the basis of opportunity sets may be a very harsh position, given the well-documented limitations of individual decision-making capacities. As soon as we introduce considerations of freedom, we also introduce considerations of responsibility and we have to face the question of defining the ethical limits of such individual responsibility. The problem becomes even more difficult when we introduce the dimension of time into the analysis: the opportunity sets of older people are heavily influenced by decisions they have taken when they were young, and the question arises for how long individuals have to remain responsible for “mistakes” committed earlier in life.

Again there are two possible paths to take. Sen (2002, p. 83) proposes to focus in the opportunity set approach on “the *actual* ability to achieve”. This means that limited decision-making capacities, e.g. due to social background, should be integrated in the

definition of the opportunity sets or in the procedure for evaluating them. This is not trivial, given the present state of our knowledge about evaluation of sets. The other path is again to broaden the description of achievements to “comprehensive outcomes”, including the process of choice. Here also, as noted already before, there are difficult questions to be answered. However, it seems that the notion of refined functionings is better suited for the careful empirical analysis which is needed to begin to answer these questions about choice, well-being and differences in opportunities.<sup>9</sup>

The third issue was already raised by Basu (1987) in his review of Sen (1985) and was taken up again in Basu and Lopez-Calva (forthcoming). It can best be illustrated in the usual Edgeworth-box of a two-person two-good exchange economy (see Figure 2). This figure depicts a general equilibrium situation (in  $e$ ), in which relative prices are given by the slope of the line  $AB$  and the initial endowments of persons 1 and 2 are given by  $a$ . In this setting it might seem straightforward to say that individuals choose within their budget sets, i.e. the areas  $O_1CAB$  for person 1 and  $O_2DBA$  for person 2. But the figure immediately shows that their freedom to choose within the budget set is illusory: what is open to one person depends on what the other person chooses. If person 2 sticks to the bundle he has in  $e$ , it is impossible for person 1 to pick bundle  $b$ . In fact, in that case he can only choose bundles from the rectangle  $O_1FeG$ . In general terms, changes in the choices by one person (e.g. induced by changes in preferences) will change relative prices and therefore the opportunity set of the other person.

*Figure 2 about here*

While Figure 2 represents the very peculiar case of a two-person two-good exchange economy<sup>10</sup>, the point made by Basu is much more general. In general, the achieved functionings of any person do not only depend on the choices made by that individual, but also depend on actions taken by other individuals. How to define the capabilities set of any given person in such a game theoretical situation? Take two games in which

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<sup>9</sup> Alkire (2005) gives an interesting overview of direct questionnaire approaches to measuring human agency (autonomy and self-determination).

<sup>10</sup> Things would already be different in a many consumer-economy, in which it can be assumed that relative prices are independent of the choices of any single individual.

one person has an identical strategy set, but the strategy set of other players differs. How to compare the capabilities of that person in these two games?

These questions are related to a criticism sometimes raised to the capabilities approach by sociologists, i.e. that it remains individualistic and neglects the social interdependencies in society (see, e.g., Evans, 2002). However, in this respect it is important to distinguish two different aspects. One is the conceptual issue discussed here of defining the capabilities in a setting of social interdependencies. Another is the fact that the specific capabilities of any person will necessarily be determined by all kinds of social interactions and influences. In so far as the “sociological” critique refers to the latter point, it is largely irrelevant and based on a misunderstanding. It is central to the capabilities approach that individual well-being and advantage depend on the social environment of the persons. Basu, however, makes the former point, which is much more difficult.

How do “refined functionings” fare in this regard? Again, it seems that they may offer promising prospects, precisely because the concept is less ambitious and does not necessitate the full description of the opportunity sets from which different persons can choose. In fact, the discussion about capabilities sets and refined functionings shows some similarity with the discussion about modelling individual rights: the problems involved in defining opportunity sets in a setting with social interdependencies are related to the problems with the definition of rights in terms of social choice (originally introduced by Sen, 1970); the approach in terms of refined functionings bears some similarity with the procedure of modelling rights in terms of game forms (Gaertner, Pattanaik and Suzumura, 1992).

Until now we focused mainly on conceptual questions related to the choice between opportunity sets and refined functionings. From the point of view of application, there is the additional issue of observability. What we observe are achieved functionings, because these can be derived from the actual (observable) way of living of the person. We can also derive from observations some direct or indirect indicators of the degree to which the individual had the freedom to choose. Again the example of the person starving because of deprivation and the person voluntarily fasting for religious reasons illustrates the point, as it essentially takes for granted that the environment contains

sufficient observable clues to distinguish between the two situations in a reliable way. Things are very different with respect to the concept of opportunity sets: opportunities that are not chosen are not realized. Therefore describing opportunities requires consideration of counterfactual states which cannot directly be observed (Fleurbaey, 2005a).

These remarks seem to suggest that the perspectives for interesting empirical work on capabilities look bleak. However, recent empirical work is more promising and has shown that conventional survey methods can be useful for assessing the extent of a person's capability set. Initially, this work focused on a distinction between achievement and scope, in a small number of life domains (Anand and van Hees, 2006). Subsequently, a range of standard household surveys were examined and it was concluded that some of the secondary datasets widely used by social scientists do in fact contain information on what people *can* do, what they have access to, as well as on the degree and source of the constraints they face. Variations in these variables provide indicators of variations in peoples' capability sets. However, typically, the extant capability indicators in secondary datasets cover only a fraction of the dimensions that quality of life and poverty researchers might be interested in. Therefore it proved necessary to develop a survey instrument, including specific indicators of capabilities. Such an instrument, based on over 60 indicators across a wide range of life domains (Anand et al 2005b), has been used as the basis for two national surveys (in the UK and Argentina), is now being developed into a short form questionnaire by public health researchers in Glasgow and is being incorporated into a project on mental health and coercion by researchers in Oxford.

This work yields some important insights about the scope for empirical progress in this area. First, whilst direct option enumeration (measurement) is probably not usually feasible, the availability and use of self-report data, including information on opportunities, abilities and constraints (indicators) relating to particular life dimensions is in fact widespread. Second, while subjectivity of data sources is inevitable, this must not be a problem per se, so long as the implications for appropriate research methods and questions are carefully understood. One concern about subjectivity within regression models surrounds endogeneity due to omitted variables but this is something that can be tested for and instrumented (Anand, Hunter

and Smith, 2005) or addressed by incorporating data on personality within single wave surveys (Anand, Santos and Smith, 2008), by merging datasets with national data on regional variations in a variety of opportunity related variables (Anand and Santos, 2007) or by moving to panel data.

It is perhaps too early to provide a definitive assessment of the impact of this latter empirical work but the production of new data, the analysis of associated econometric issues and discussion of methodological issues concerning the production of welfare statistics does seem to open up a broad field of potentially fruitful and innovative empirical research.

That being said, the rest of the chapter will revert to using the term “capabilities” in a looser way, which can capture both the approach in terms of opportunity sets and the approach in terms of refined functionings.

#### **4. How to select the relevant functionings or capabilities?**

While the available evidence clearly shows that the move to a multidimensional framework is a considerable enrichment for policy analysis, there is no consensus about how to define the most adequate multidimensional space. Should one include all capabilities in the list, some of them possibly of minor importance? Or should one focus on a limited and abstract list of essential capabilities? How to set that list?

There are two “extreme” approaches to this problem. The first one is exemplified in the work of the philosopher Martha Nussbaum (2000, 2006). Inspired by Aristotle, she starts from an openly normative (or “objective”) view about what constitutes human flourishing and defines a list of abstract essential capabilities on the basis of this a priori view. Of course, the translation of these abstract capabilities in implementable terms will depend on the specific social, cultural and economic context, but it remains true that such essentially perfectionist approaches leave little room for interindividual differences in opinions about what constitutes a good life. Consensus seems to be within reach when one remains at the level of abstract formulations, but soon crumbles down when one turns to more specific applications.

A priori defined lists of capabilities are useful, because they provoke debate and discussion, but they do not seem to offer a solid foundation for scientific analysis.<sup>11</sup>

Amartya Sen is the exponent of the alternative approach, in which the definition of the list of capabilities is deliberately left open, and has to be settled in a democratic process through public reasoning (see, e.g., Sen, 2004).<sup>12</sup> This dynamic process creates room for participation of the people concerned – on its own already a crucial capability. Yet, from an analytical point of view it is not much of a help. First, when one makes the definition of capabilities itself dependent on the social and economic context, the whole approach becomes in some sense relative. One then loses one of the main advantages of the capabilities approach: that it reconciles an absolute view of well-being and poverty in the space of capabilities with a relative view in the space of economic resources.<sup>13</sup> Second, the real scientific challenge is to understand why some capabilities are more prominent in some situations than in others, on what basis people make decisions, how views about capabilities develop over time. For such an analysis, one needs at least some general frame of reference.

Although both approaches seem to be at opposite sides of the spectre, one should not exaggerate the differences. Philosophers in the first approach acknowledge and even stress that the specific content of the abstract capabilities has to be decided through a participatory process. And within the second approach, the process of participation and deliberation will usually start from some first a priori-proposal. Yet, the main emphasis of both approaches remains different. And, from an analytical perspective, neither of the two is very helpful.

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<sup>11</sup> This is perhaps the right place to restate the point that this is not the main purpose of these authors. Alkire (2002, p. 194) sees the set of dimensions as “a nonpaternalistic and useful tool in addressing a number of knotty development problems – from participatory exercises to data collection drives, from national policy making initiatives to public debates – in a multidimensional fashion.”

<sup>12</sup> Alkire (2001) has applied this approach in a participatory process for the evaluation of three small-scale development projects.

<sup>13</sup> The following example given by Sen (2004, p. 79) illustrates my point: “Given the nature of poverty in India as well as the nature of available technology, it was not unreasonable in 1947 to concentrate on elementary education, basic health, and so on, and not worry too much about whether everyone can effectively communicate across the country and beyond. However, with the development of the Internet and its wide-ranging applications, and the advance made in information technology (not least in India), access to the web and the freedom of general communication are now parts of a very important capability that is of interest and relevance to all Indians.”

The problem is well illustrated by the work of the empirical researchers who have had to soil their hands with defining specific lists of capabilities and functionings. In the empirical work based on surveys, the definition of the dimensions is largely data-driven.<sup>14</sup> Often the first problem is the reduction of a long and overlapping list of very specific indicators to some more basic underlying dimensions. Factor analysis (Schokkaert and Van Ootegem, 1990) and fuzzy sets theory (Chiappero Martinetti, 2000) have been proposed as possible tools. Lelli (forthcoming) compares both approaches on the same data set and finds that the results are not very different. This should not hide, however, that the two approaches reflect very different conceptions. One view sees the definition of the underlying dimensions as a measurement issue. There is one “true” value of the functioning and each of the different specific indicators is approximating that true functioning with some measurement error. The other view interprets the definition of the underlying dimensions as a normative weighting problem. The indicators are informative in their own right, but the question is how important they are, i.e. what weight they should get in the construction of the more encompassing dimension. Factor analysis is only meaningful in the first perspective. It is a valuable measurement tool, but the statistical correlations between the specific items do not give any indication about their relative importance from a normative or substantial perspective. Fuzzy sets theory is more difficult to locate in one of the two views. However, it fits better in the second than in the first. I will therefore return to it in the next section, in which I discuss the indexing problem.

The empirical work within the capabilities approach has led to a large variation in “lists” of capabilities, heavily dependent on the specific problem (which may already be problematic) and on the availability of data (which is worse). It is not surprising that a list of functionings relevant for the long-term unemployed (Schokkaert and Van Ootegem, 1990) is very different from a list of functionings used to describe the well-being of children in different countries (Phipps, 2002).<sup>15</sup> For specific policy purposes

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<sup>14</sup> Robeyns (2005) has proposed a procedure to select the list of capabilities in empirical work. Her procedural criteria are not based on a theoretical approach, however, but boil down to a list of checks to correct for the potential personal biases of the researcher (as she herself acknowledges).

<sup>15</sup> For Schokkaert and Van Ootegem (1990) the list of refined functionings consists of social isolation, happiness, physical functioning, microsocial contact, degree of activity and financial situation; Phipps (2002) works with the functionings birth-weight, asthma, accidents, activity limitation, trouble concentrating, disobedience at school, bullying, anxiety, lying, hyperactivity. But activity means something quite different in both lists.

(improving the living standard of the unemployed or the well-being of children) this variation might even be desirable. Moreover, as suggested by Ramos and Silber (2005), the policy conclusions following from different lists may not be very different. But if we want to develop a convincing theory of well-being that can be used to analyse differences between different countries or social groups and (possibly long run) historical developments, that would be helpful in formulating clearly the trade-offs between different policy issues, and that could be integrated in a second best-analysis of policy measures in a world of asymmetric information, we should be more ambitious.

Some authors have tried to go further than the simple exploitation of existing data. I give two examples. Anand et al. (2005b) explicitly tried to operationalise Nussbaum's list of capabilities with survey data from the British Household Panel Survey. As noted, they point out that this survey does in fact contain some information on aspects of freedom from questions to do with how capable people feel, whether they have access to certain forms of transport when needed and so on. For a number of Nussbaum's capabilities, however, it is impossible to find a suitable indicator. For other capabilities only an indirect indicator is found – e.g., the capabilities related to senses, imagination and thought are approximated by educational level. At the same time, some mental health and psychological locus of control questions do appear to be quite close in terms of meaning to theoretical issues of autonomy that have interested many researchers in this field.

Clark (2005) investigated through a small number of high-quality interviews how the South African poor perceive “development” (a good form of life). He concludes that space must be made for utility (defined broadly to include all valuable mental states) and for the intrinsic value of material things. A challenging example is Coca-Cola, which turns out to be very important to many poor respondents. While the nutritional value of Coca-Cola is low, it is “perceived as a superior first world product” (Clark, 2005, p. 1353) and is important “to achieve other important functionings such as relaxing, facilitating social life and enhancing friendships” (Clark, 2005, p. 1354). But is “having the opportunity to drink Coca-Cola” really a crucial capability?

How to proceed from here? In my view, it is necessary to raise explicitly a series of conceptual questions – and then to try to get better insights through the estimation of structural explanatory models. First, how “subjective” should our concept of well-being be, or, formulated somewhat differently, what is the place of psychological functionings? The larger the number of psychological functionings included in the list (or the greater the weight given to them), the larger the risk that the problem of “physical-condition”-neglect will reappear and the more difficult the issue of “valuation-neglect” will become. I give two examples. Social status may be a crucial functioning, but in most societies it depends on relative consumption levels, and in a certain sense even reintroduces the problem of expensive tastes (Robeyns, 2006a): the CEO of a large firm may “need” a certain material lifestyle to be respected in his group of peers, a university professor in a philosophy or welfare economics department may perhaps earn more prestige through a sober lifestyle. Do we accept these “needs” in our definition of well-being? To give a second example: what about feelings of depression that are not obviously linked to physical conditions? Where to draw the line between real psychiatric problems (which most observers would include in the definition of well-being) and overly subjective reactions, which can be easily manipulated and are well within the sphere of private information? These questions are related to, but do not coincide with, the role of personal preferences in the definition of capabilities, to which I will return in the next section.

Secondly, how to treat so-called “social” capabilities, which cannot be reduced to narrow individualistic considerations? Take the examples of “living in a just society” or “having the capability to engage in meaningful social relations”. Not only can it be argued that these capabilities should be part of an Aristotelean conception of the good life (as in Nussbaum’s list), they also turn out to be important from a psychological point of view.<sup>16</sup> Yet they are essentially dependent on the whole social environment. I do not achieve the functioning of “living in a just society” if I am treated in a just way myself: it is equally important that other persons in society are treated equally justly. This suggests that these capabilities can only be evaluated at the aggregate level. But different individuals may have widely different opinions about what constitutes a just society or about what are meaningful social relations. Perhaps the best we can do in

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<sup>16</sup> Remember Lerner (1980)’s hypothesis of the need to believe in a just world.

these cases is to shift the focus away from (individual or aggregate) functionings and/or capabilities to the necessary social and political institutions which create room for different kinds of social relations or for an open and democratic debate about the content of justice.

Thirdly, and most importantly, the capabilities idea has been introduced as an answer to the normative question: equality of what? Ethical considerations are essential in the delineation of relevant capabilities (or refined functionings). More specifically, given that the ultimate purpose is not simply to derive the best possible descriptive measure of subjective well-being, it is impossible to avoid the question of individual responsibility. This question has different dimensions. While I argued before that holding persons responsible for all their choices would be a very harsh position, some responsibility for choice is unavoidably linked to the introduction of freedom. This means that at least some achievements should not be taken up in a concept of well-being that is meant to be used in an egalitarian perspective. The problem of responsibility for choices is a very tricky one from a philosophical point of view, but cannot be neglected from a policy perspective.<sup>17</sup> A different but equally important issue is the delineation of a personal sphere, which government decisions should not intrude out of a respect for privacy and for personal integrity. Some of the psychological capabilities appearing in Nussbaum's list (and in other lists) definitely seem to belong in this category. There are then two possible approaches. One is to make explicit that taking up some capabilities in the definition of advantage does not necessarily imply that there is need for direct government intervention if some individuals lack these capabilities. What the government has to do is to set the environmental and social conditions under which individuals can take up their own responsibility. This is basically Nussbaum's position. It requires a deep empirical analysis of the influence of the social environment on these "private" capabilities. The second is to include only those refined functionings in the definition of well-being which are part of social responsibility, i.e. to "carve out" room for individual responsibility by disregarding explicitly some functionings (Fleurbaey, 1995, 2005a).

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<sup>17</sup> In fact, while the philosophical question of responsibility for choices is conceptually very different from the incentive problem in a second-best world, the two are closely linked in the policy debate – and the concern for "responsibility" in the public opinion and among decision-makers often is the translation of second best considerations.

This latter position implies that the definition of the relevant functionings is not an empirical but a purely normative question.

The three questions raised are essentially of a conceptual nature. Yet empirical research can make a useful (and perhaps even necessary) contribution to answering them. First, unless one takes an extreme objective (perfectionist) approach to the definition of a good life, the opinions of the people concerned should matter in the definition of the relevant refined functionings and in the delineation of the sphere of personal responsibility. Structured empirical research about values in society may then be an interesting complement to participatory focus groups. Second, even if one rejects the idea that normative questions can be settled by empirical research, there are many empirical issues underlying the normative discussion. What is the empirical relevancy of psychological functionings and of social pressure in consumption behaviour? How do opinions about a just society differ? What are the most important features of the social environment that may help stimulating meaningful social relations? How can the government create conditions to help persons take autonomous decisions in their own private spheres? Building and estimating good structural models may give a better insight into the empirical relationship between abstract capabilities and specific indicators, and may show how individual achievements are linked on the one hand to the socioeconomic and environmental background and on the other hand to the psychological features of the process of choice and decision-making.

## **5. The indexing problem**

Let us now take the following step. Suppose agreement is reached about the list of (refined) functionings or capabilities. Suppose there are  $m$  functionings and  $n$  persons in society, and suppose we have perfect information<sup>18</sup> about the level of functionings for all persons in society, i.e. about the vectors  $b_i$ . How then to construct on the basis of  $b_i$  a one-dimensional indicator of the well-being or advantage of person  $i$ , as is

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<sup>18</sup> At this stage, I leave open the question of the measurement level for these different functionings.

suggested by eq. (2)? Note first that the construction of such an indicator is probably not necessary, if the only purpose of the exercise is to construct a richer description of the well-being of individuals than is possible with a one-dimensional approach. In fact, for this purpose, a simple observation of the vectors  $b_i$  is sufficient, and any aggregation procedure will always lead to a loss of information. As soon as we want to go further, however, and use the capabilities approach for a deeper policy analysis, the possible trade-offs between the different dimensions can no longer be neglected.<sup>19</sup>

Let me adapt somewhat the previous notation to introduce this problem. Following the arguments in the previous section, we focus on refined functionings vectors. Denote as before the set of feasible bundles of refined functionings by  $X$  and denote the set of individuals by  $N$ . Let  $\succeq$  now be a reflexive and transitive binary relation defined over  $N \times X$ . For  $(i,a) \in N \times X$ ,  $(i,a) \succeq (j,b)$  is to be interpreted as “the advantage of person  $i$  with functionings vector  $a$  is at least as great as the advantage of person  $j$  with functionings vector  $b$ ”. The asymmetric and symmetric factors of  $\succeq$  are denoted by  $\succ$  and  $\approx$  respectively. This (possibly incomplete) relation is of course immediately linked to the representation with the valuation function in (2). Note that the relation  $\succeq$  reflects the ideas of the policy-maker (or the ethical external observer or the analyst).

I mentioned already that Sen has always emphasized the difficulties involved in defining  $\succeq$  and has suggested that the best one can hope for is to find a partial ordering. In many of his writings (again beginning already in Sen, 1985), he proposed that the dominance relation may be a good starting point in this respect. If a person  $i$  is better-off than person  $j$  on all functionings, then it seems indeed natural to state that the advantage of  $i$  is greater (or at least not smaller) than the advantage of person  $j$ .

Expressing this idea in simple formal terms, we can write it as

*Weak dominance (WD)*.  $\succeq$  satisfies weak dominance if and only if, for all  $i,j \in N$  and all  $a,b \in X$ ,  $a \succ b$  implies  $(i,a) \succeq (j,b)$ .

One problem with this approach is of course that the resulting partial ordering may be extremely incomplete. There is a deeper question, however, as to why it is so difficult

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<sup>19</sup> Even the refusal to make any trade-offs is a well-defined position about these trade-offs. I come back to this point later on.

to find a more complete ordering. One approach is to say that well-being and advantage are objective concepts, and that the incompleteness follows from the fact that it is intrinsically difficult to define what is a good life. The perfectionist idea that well-being is an objective concept is certainly prominent in the work of many philosophers in the Aristotelian tradition (most notably Martha Nussbaum), and seems also to be underlying Sen's approach (as mentioned by Sugden, 1993). An alternative approach would accept that the valuation of functionings bundles should be at least partly based on the valuations by the persons themselves (which seems to be more in line with the idea of freedom) and that the difficulty of defining  $\succeq$  reflects the fact that it is not straightforward to find a kind of "overlapping consensus".

Recent work has shown that there is a deep conflict between the dominance relation and the idea of respect for individual opinions. I follow the analysis of Pattanaik and Xu (2007), but closely related findings have been proven by Brun and Tungodden (2004) and by Fleurbaey (2005). Pattanaik and Xu introduce the following property that they call "minimal relativism":

*Minimal relativism (MR).*  $\succeq$  satisfies minimal relativism if and only if there exist  $i, j \in N$  and  $a, b \in X$ , such that  $(i, a) \succ (i, b)$  and  $(j, b) \succ (j, a)$ .

The formal property can be considered as interesting in its own right. It also follows in a direct way from the non-paternalistic principle that the ordering by the ethical evaluator should follow the opinions of the persons concerned, i.e. if person  $i$  values  $a$  not less than  $b$ , then  $(i, a) \succeq (i, b)$ , added to the empirical observation that there is a lot of variation about values in society. Note that we are not referring here to the utility or the subjective happiness of the persons, but really to their opinions about what constitutes a good life.

Adding a plausible and familiar property of continuity of  $\succeq$ , Pattanaik and Xu (2007) then show that  $\succeq$  cannot simultaneously satisfy weak dominance, minimal relativism, and continuity. The intuition behind the proof can be easily seen from Figure 3. Suppose that  $(i, a) \succ (i, b)$  and  $(j, b) \succ (j, a)$ . (Such a situation must exist because of MR). Choose then  $c$  (close to  $a$ ) with  $c > a$  and  $d$  (close to  $b$ ) with  $d > b$ . Because of

continuity we have that  $(i,a) \succ (i,d)$  and  $(j,b) \succ (j,c)$ . But WD implies that  $(i,d) \succeq (j,b)$  and  $(j,c) \succeq (i, a)$ . This violates transitivity of  $\succeq$ .

*Figure 3 about here*

While I have focused on the approach in terms of functionings, Pattanaik and Xu (2007) have analogous results for a formalisation of capabilities in terms of opportunity sets or in terms of a combination of opportunity sets and achievements. The results are simple and the intuition behind them is obvious, but this only reinforces the basic message that there is a very deep conflict between the dominance principle and minimal respect for the opinions of the persons themselves. Yet in a society with different cultures and subcultures and with widely varying opinions about what constitutes a good life, it seems hard to defend a perfectionist approach. The question then remains: how to compare differences in advantage from a policy point of view?

The fairness approach proposed by Fleurbaey (2005a, 2005b) is an ambitious and attractive framework to reconcile respect for individual preferences, ordinal non-comparability of preferences and a maximal application of the dominance principle that is compatible with respect for individual preferences. Its empirical application is not straightforward, however, and some difficult philosophical issues remain unsolved at this stage.<sup>20</sup> Other theoretical approaches to the indexing problem do not really tackle the issue. Brun and Tungodden (2004) explicitly stick to the dominance principle, even when it comes into conflict with individual opinions. Gaertner and Xu (2006) work with star-shaped capability sets and then define the standard of living as the distance between the frontier of these sets and a reference functioning vector. Given the state of the theoretical literature, it is not surprising that the empirical work also largely neglects the problem of how to treat differences in individual opinions about what constitutes a good life and usually assumes preference homogeneity (implicitly or explicitly).

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<sup>20</sup> Measurement of individual willingness-to-pay plays an important role in empirical applications of this approach. See Fleurbaey and Gaulier (2006) for a first application to international welfare comparisons.

There has recently been an upsurge in the methodological literature on multidimensional inequality and poverty measurement.<sup>21</sup> How to reformulate the traditional Pigou-Dalton criterion in a multidimensional setting and what are the implications of different reformulations? How complete is the ordering of social states one can derive by introducing more and more requirements on the individual advantage functions without going so far as to specify a specific functional form? And, at the end, what are the ethical features of some explicitly specified multidimensional inequality measures? How to define the poor? Is someone poor when she is deprived on one dimension, or should she be deprived on all dimensions? Or is it perhaps meaningful to count the number of dimensions on which she is deprived? What generic assumptions on the advantage function are implied by these different poverty definitions? It is in fact somewhat surprising that this literature on multidimensional inequality measurement has until now not had a larger influence on the empirical work within the capabilities approach *stricto sensu*.

I mentioned already that a large number of empirical applications content themselves with a mere description of functionings vectors. At the other extreme, there are also some examples in which one overall index value is constructed in an explicit way. Klasen (2000) calculates a deprivation index as the average score of all individual components. A similar method is followed in the well known Human Development Index, which computes the well-being of a country as the simple (equally weighted) sum of the (transformed) scores on the three dimensions (log GDP per capita, education, life expectancy). Such an explicit weighting procedure has the advantage of being transparent and open for discussion. Of course, its weaknesses then become immediately clear. More specifically, the use of a simple sum implies perfect substitutability between the different dimensions, which strongly contradicts the proclaimed philosophy of the HDI, as stated for example in a recent Human Development Report: "Losses in human welfare linked to life expectancy, for example, cannot be compensated for by gains in other areas such as income or education." (Human Development Report, 2005)

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<sup>21</sup> Weymark (2006) gives a survey of the normative approach to the measurement of multidimensional inequality, Trannoy (2006) summarizes multidimensional dominance approaches. An application to poverty with an interesting discussion of statistical aspects and some nice empirical illustrations can be found in Duclos et al. (2006).

Other approaches in the literature have derived the weights on the basis of a statistical technique like principal components analysis (e.g. Klasen, 2000)<sup>22</sup>, have estimated output distance functions (Lovell et al., 1994; Ramos and Silber, 2005) or have applied the Borda count (Dasgupta and Weale, 1992; Qizilbash, 1997). Recently, the fuzzy sets methodology has become rather popular (see, e.g. Chiappero Martinetti, 2000; Lelli, forthcoming). Individuals who have a score below a lower threshold or above an upper threshold are classified unambiguously as being deprived or non-deprived respectively. For values in between the two thresholds a membership function is specified to indicate the degree of “partial” deprivation. In some applications survey data are used to define these upper and lower cut-off points (Qizilbash and Clark, 2005). In a next step different (union, intersection or averaging) operators are introduced to aggregate the different dimensions. While undoubtedly more attractive than the simple ad hoc-approaches, the fuzzy sets approach is less general than it may look at first. At the end, it boils down to applying specific hypotheses about (more or less attractive) functional forms for the membership functions and for the aggregation operators. The questions raised by this procedure are then very similar to the questions analysed in the literature on multidimensional poverty measurement. An interesting procedure, which is not restricted to the fuzzy methodology, is the use of frequency-based weights to construct the overall index (see also Desai and Shah, 1988). This captures the idea that the lower the proportion of people with a certain deprivation, the larger the weight assigned to that specific deprivation should be. It would be useful to get a better understanding of the theoretical underpinnings of this weighting scheme.

Once one has calculated an index of the living standard, one can use it to calculate “equivalent incomes”, i.e. the income that persons with different characteristics need to reach a given level of living standard. These equivalent incomes can then be confronted with poverty lines. They can also be compared with the equivalence scales as calculated with traditional economic methods. Recent papers which have pursued the idea of “functioning equivalence scales” (Zaidi and Burchardt, 2005; Lelli, 2005) have not solved the indexing problem, however, but have worked instead with

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<sup>22</sup> I mentioned already that the usefulness of these statistical techniques is doubtful, as is also acknowledged by Klasen (2000) himself. The “statistical” weights only reflect the correlation between the different dimensions, and their relative importance in explaining the variation for the original items as such does not contain any useful normative information.

equivalence scales computed for one individual functioning (having any savings in the former case, shelter in the latter).

An intriguing possibility relates to the use of “overall satisfaction” measures as aggregators. If much of the information used to estimate the functionings (or capabilities) is derived from questionnaire studies, why then not ask the respondents directly about their “valuation” of these capabilities and use the answers on this question as a measure of  $v_i$ ? Some suggestions along this line are made by Anand and van Hees (2006). However, there remains the problem of distinguishing clearly between “subjective happiness” (as one specific functioning) and “overall satisfaction” (as an aggregator). In the latter case, care must be taken to avoid the problems of “physical-condition neglect” and “valuation neglect”, if one does not want to fall back on simple welfarism. And these considerations confront us again head-on with the crucial questions raised earlier concerning the place to be given to individual valuations.

## **6. Macro versus microstudies: the aggregation problem**

Given that the main focus of the capabilities approach undoubtedly is the individual, it is perhaps somewhat surprising that from the very beginning the most popular applications have been at the macrolevel, the best known being the Human Development Index. How to interpret these indices at the country level?

The most natural approach would be to construct the indices at, e.g., the national level as an aggregate of the living standards of individuals. If we have solved the problems of the previous section and we have been able to define a measure of individual well-being, we can then write social welfare as  $W(v_1(b_1), \dots, v_n(b_n))$ , where  $v_i$  is the valuation function defined in (2). Provided that the necessary measurability and comparability assumptions are satisfied, one could pick many possible specifications for  $W(\cdot)$ , going from the simple sum of capability index values to a leximin criterion, with different concave functions in between these two extremes. Note again that in this setting it is not necessary (nor desirable) to interpret  $v_i$  as a utility value: it should be seen as the value attached to one’s life in a broader sense. This changes

considerably the interpretation of the “comparability” of such values – and also suggests that the function  $W(.)$  could be interpreted as the outcome of an (ideal?) political decision making process.

This natural approach is not the one underlying the HDI and other similar country indices, however. These popular indices first aggregate over the different dimensions (e.g. by computing an average value for each country) and then aggregate these values for the different dimensions in one overall index. One possible interpretation of this approach is to look at the countries as if they were individuals and to apply the whole idea of “well-being” and “advantage” at the country level. But this is an unattractive approach, because it completely neglects the distribution of the different functionings within the countries. If we reject this interpretation of countries as representative individuals, we have to face the crucial question: does the “country” approach give reasonable approximations to the ethically preferable approach of first computing the indices of individual advantage and then aggregating these individual indices? Dutta, Pattanaik and Xu (2003) have shown that this is not the case in general. The two approaches will only yield the same results if the aggregation functions have trivial and unattractive forms, boiling down basically to linearity.<sup>23</sup> This result is easy to understand, since the dimension-by-dimension approach completely discards all substitution and complementary relationships between the different dimensions at the level of the individuals.

The Dutta et al. (2003) result shows that the popular short-cut of working with country aggregates is apparently not very sensible, if we are ultimately interested in the well-being (or deprivation) of the individual persons. Since this seems indeed the dominant concern in the capabilities approach, the conclusion must be that we cannot avoid the task of collecting adequate data at the individual level.

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<sup>23</sup> One can turn this negative conclusion on its head and argue that it offers some justification for the simple functional form of the HDI.

## 7. Conclusion

The popularity of the capabilities approach has grown rapidly in recent years. The “capabilities movement” has even become very successful outside academia. This is good news for those who think that a sound policy analysis should look further than simple monetary measures of the living standard while at the same time not going the whole way towards subjective welfarism. A focus on individual human development with special emphasis on positive freedoms is indeed very attractive from an ethical point of view.

From an analytical perspective, the picture is perhaps more open. It is undoubtedly true that a lot of useful empirical research now has convincingly shown that a multidimensional approach offers rich insights to evaluate well-being and deprivation. Difficult methodological questions have remained unsolved, however. The recent theoretical literature has made it possible to formulate them in a sharp way. How to evaluate opportunity sets? How to introduce considerations of freedom in a “refined” functionings approach? How to formulate a list of capabilities which can be used to analyse changes over time and differences between different societies without being open to manipulation? How to construct an overall index of well-being and what should be the relative role of a priori ethical valuations and of the opinions of the individuals themselves? Researchers developing capability indicators have recently opened up some interesting and novel lines of inquiry, but I think that we will only continue to progress if there is in the future more intensive interaction between philosophers and social scientists and between theory and empirical work. More specifically, it is crucial, *first*, to estimate structural models with individual data, analysing the link between individual achievements, the socioeconomic and environmental background of the persons concerned and the specific features of the individual processes of choice and decision-making; and, *second*, to integrate the insights from these models in applied ethical thinking.

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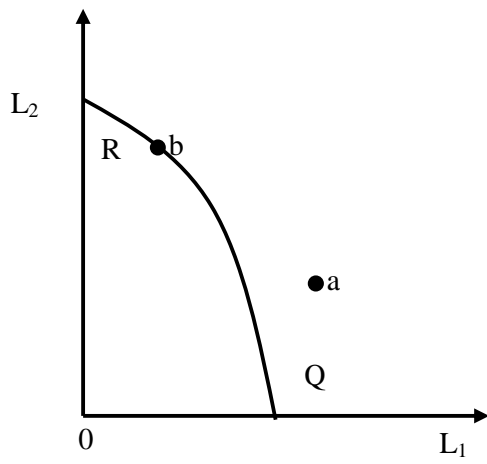
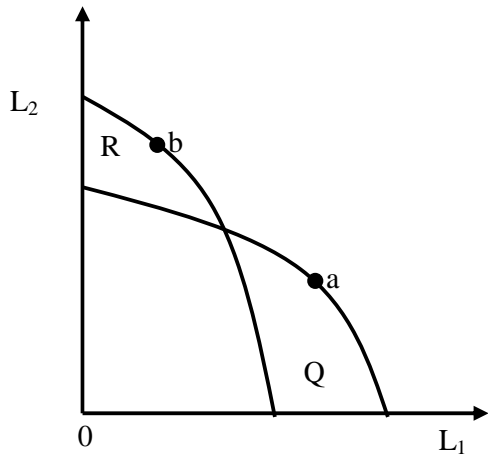
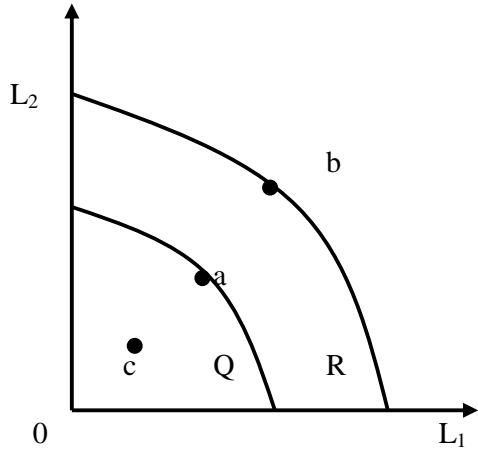
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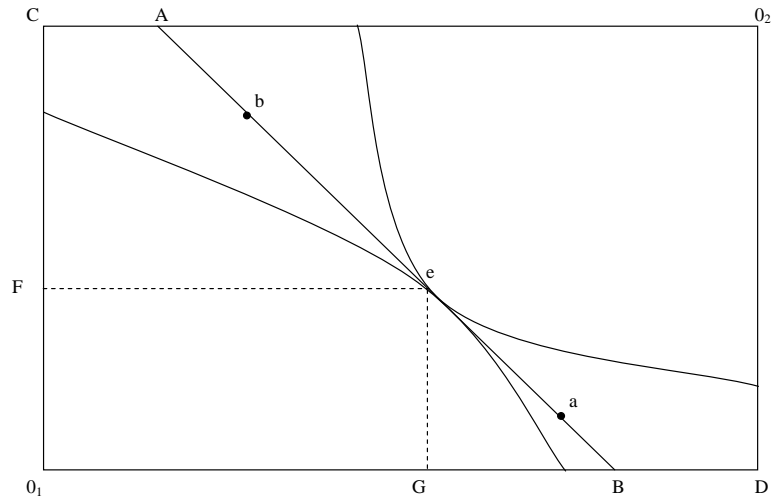
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**Figure 1**



**Figure 2**



**Figure 3**

