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Applying the Capability Approach Empirically: An Overview with Special Attention to Labor**

Operationalizing the capability approach (CA) is difficult due to the conceptual challenges it poses: its multidimensionality and the role it assigns to freedom of choice for human wellbeing. Therefore the operationalizability of the CA has been questioned. Despite this, a lot of empirical studies apply the CA in various contexts and on a multitude of issues. This paper discusses the challenges in operationalizing the approach and reports on the methods used to meet them. Special attention is paid to studies of labor-related issues. It turns out that studies of labor-related issues have developed new methods for operationalizing the CA using available data. Generating primary data is another way to meet the challenge of modeling freedom of choice, the core concept of the CA, but has been used less with respect of labor-related issues. After discussing the challenges of operationalizing the CA, the paper briefly addresses the relation between labor and wellbeing in economic theory. Then one section reviews empirical studies based on available data and the methods they use and the next one primary studies of the CA. The last section concludes.

Key words: **capability approach, operationalization, empirical studies, labor market** (JEL: B59, C13, I3, J01)

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Introduction

Operationalizing the capability approach (CA) is challenging in two respects: its multidimensionality and its conception of freedom as contributing to human wellbeing. There is widespread agreement that a plurality of dimensions should be taken into account when measuring wellbeing, but no agreement about which dimensions are relevant or how to select and weight them. In practice it is necessary to collect a huge amount of micro-data, indicating the achievements of each person in each dimension, i.e. their health, their shelter, their educational achievements and so on apart from their income.

While there are a number of multidimensional approaches to wellbeing, the CA is special in seeing freedom of choice as an essential ingredient of wellbeing. The CA models freedom of choice as given by the capability set from which a person can choose but one option. This adds to the complexity of a pluralistic approach, in particular, since the capability set cannot be observed (Sen, 1992, p. 52). Only the chosen option – the bundle of functionings achieved by a person – can be observed.

The challenging character of the CA has called its operationalizability into question (Robeyns, 2000; Comim, 2008). Despite the doubts about its operationalizability there are by now many empirical studies based on the CA. This paper aims at giving an overview of the used methods and how the studies solve the before-mentioned problems of multidimensionality and inclusion of freedom of choice. The paper looks at quantitative studies based on questionnaires. Apart from questionnaire-data there are other data that may be used according to Sen (1985, p. 39): data on market transactions as used for calculating the GDP and direct observations such as anthropological measurements of body height etc. In fact, these other data-sources play a minor role despite Sen's claim that they lend themselves especially well for measuring functionings.

Usually primary and secondary studies are distinguished in the tradition of social indicators research: Secondary studies use available data such as socio-economic surveys like the British Household Panel Study and analyze them from a CA-perspective. Primary studies generate data specifically suited for capability analyses. Most of the studies are based on data that is already available not least for financial reasons. The number and quality of available data sources on living conditions is increasing. Yet, the special demands of the CA have induced some primary studies.

Though the CA is an approach for evaluating wellbeing in general, it considers labor to play an important role in human life and thus to contribute greatly to human wellbeing. The paper pays special attention to labor-related applications of the CA and asks whether the CA sheds new light on these issues.

The paper is organized as follows: The two challenging features of the CA – plurality of dimensions and the concept of freedom of choice – are discussed in more detail in the first section. The second section briefly outlines the special role of labor for wellbeing in economic thinking. To comply with the crucial role given to freedom of choice in the CA there are two strategies: either specific methods are used when analyzing secondary data or specific items are developed and used for collecting primary data. The third section refers to the first strategy giving an overview of the many

methods used for operationalizing the CA when applied to secondary data and those secondary studies that are concerned with labor. The fourth section presents briefly the two most important projects on generating primary data in the spirit of the CA and hence covers the second strategy for operationalizing freedom of choice. A subsection looks specifically at studies on labor-related issues. The fifth section concludes.

1. Two challenges for operationalizing the capability approach

1.1 *Choice of dimensions*

The first of the two challenges – the multidimensionality of the CA – can itself be divided into two aspects, namely the choice of dimensions and the interplay between the dimensions that one has chosen. Basically, Sen characterizes the dimensions as “doings and beings” (in brief, “functionings”). This leaves open a wide range of what we might understand as included in this idea. Nussbaum, however, has proposed a list of ten “central functional capabilities” (see Appendix), each of which must be further specified according to the cultural context. To express this, she speaks about “multiple realizability”¹ (Nussbaum, 2000, p. 77).

Given such a multiplicity of dimensions and the variety of ways in which they can interact, the issue is how one might arrive at a clear assessment, in other words, how to weight and aggregate dimensions. Sen’s position regarding this question is well established: often only an incomplete ordering of multidimensional situations is feasible, but this incompleteness is no embarrassment. Rather it requires open discussion. In addition, these two aspects, choice and interplay, overlap, since selection from multiple dimensions is linked both to the recognition of an “irreducible plurality” of human wellbeing, and also to the positive weighting of a few dimensions at the expense of others to which no weight is accorded at all. Thus, the first aspect – the choice of dimensions – takes on special significance.

Alkire (2007a, c) analyzed the process used for selecting dimensions in existing studies and differentiated five methods of selection (Table 1).

One method that Alkire does not make separate mention of, but which has its own practical significance (see section 3.1), is to measure dimensions using multivariate analysis in order to uncover the structure of the problem, since one may consider the variables as being latent (Krishnakumar & Nagar, 2008). In contrast to the first method, the selection of dimensions is not directly based on the available data, but rather constructs dimensions that are presumed to be latent “behind” the manifestations of the variables.

¹ Comim (2008: 167) points out that people have been ready to dismiss this element of her theory. In his view, the debate between Nussbaum (1988, 2000) and Sen (1993, 2004, 2005) about the question of a list has thus diminished in importance. (Cf. Leßmann, 2007b).

Table 1: Methods for selecting dimensions

1. *Existing Data or Convention* to select dimensions (or capabilities) mostly because of convenience or a convention that is taken to be authoritative, or because these are the only data available that have the required characteristics.
2. *Assumptions* – to select dimensions based on implicit or explicit assumptions about what people do value or should value. These are commonly the informed guesses of the researcher; they may also draw on convention, social or psychological theory, philosophy, religion and so on.
3. *Public 'Consensus'* – to select dimensions that relate to a list that has achieved a degree of legitimacy due to public consensus. Examples of such lists at the international level are universal human rights, the MDGs, and the Sphere project; these will vary at the national and local levels.
4. *Ongoing Deliberative Participatory Process* – to select dimensions on the basis of ongoing purposive participatory exercises that periodically elicit the values and perspectives of stakeholders.
5. *Empirical Evidence Regarding People's Values* – to select dimensions on the basis of empirical data on values, or data on consumer preferences and behaviors, or studies of which values are most conducive to mental health or social benefit.

Source: Alkire (2007c, p. 3-4)

While Alkire analyzed how different studies approach the problem of selecting dimensions, Robeyns (2003) proposed a catalogue of criteria for how the dimensions should be selected (Table 2).

Table 2: Criteria for selecting dimensions

1. *Explicit formulation*
2. *Methodological justification*
3. *Sensitivity to context*
4. *Different levels of generality: ideal and second best list*
5. *Exhaustion and non-reduction*

Shortened version from Robeyns (2003)

Robeyns (2003, pp. 68-70) justifies her development of criteria by referencing the debate between Sen and Nussbaum regarding the creation of a list of relevant dimensions (see Footnote 1). Robeyns finds both Nussbaum's position, which prescribes a list, and Sen's call for public debate unsatisfying: Nussbaum only permits flexibility in regard to the expression of her dimensions in a particular context (see above), and assumes that, ideally, all of the central functional capabilities that she names must be taken as fundamental (Nussbaum, 2000, p. 81). Sen (1996, p. 117) argues for always deriving a new list from each context (research questions, data availability, cultural context, etc.), without expressing a more specific opinion about how this might be done. In devising criteria for selecting dimensions, Robeyns aims to describe the selection process more precisely than is possible with Sen's open-ended approach, while avoiding the use of an a priori list.

Robeyns' most fundamental requirement is that the list be disclosed. Even this much is not the case in many studies. In addition, the selection criteria are often not named explicitly. Alkire's list of methods for selection (see above) can serve as a refer-

ence in this regard. Similarly, sensitivity to context is often addressed only implicitly. The differentiation between an ideal list of dimensions and the list that is actually used was already evident in the question posed by Sen (1992, p. 53): “Practical compromises have to be based with an eye both to (1) the range of our ultimate interests, and (2) the contingent circumstances of informational availability.”

Robeyns final criterion is extremely problematic: she specifically suggests, “that the listed capabilities should include all important elements. Moreover, the elements included should not be reducible to other elements” (Robeyns, 2003, p. 71). Basu (1987, p. 72) had already asked: “[H]ow can we be sure that the items on the list do not overlap?” However, the idea that the dimensions of wellbeing are highly interdependent should not provoke much dissent. Given this reciprocal dependence, Robeyns’ requirement would seem naïve, even if she grants that: “There may be some overlap provided it is not substantial” (Robeyns, 2003, p. 71). In fact, the researcher has to choose between two exercises: Either he aims at measuring and evaluating current conditions, then he has to assume a structure – and it is better to make this explicit and to explain it; or he aims at investigating how the dimensions are related, then multivariate analyses, in particular factor analysis can be used to determine from the data which dimensions are (statistically) independent from each other.² The questions cannot be processed simultaneously. For this reason, I suggest to change the fifth criterion to: *5. Information about the assumptions concerning the interdependence of dimensions.*

1.2 Assessing capabilities

In addition to the issues of multidimensionality and the selection of dimensions, the second major challenge in operationalizing the CA is how to model freedom (of choice) through the capability set. The options available to an individual cannot be observed directly; rather, they are determined by the interaction between the resources available to that individual and the utilization functions (Sen 1985). The utilization functions comprise a number of conversion factors that are related to personal characteristics (talents and handicaps), to social circumstances (norms, customs, institutions), and to environmental conditions (climate, geographical location, etc.). According to Sen (1992, pp. 64–69), what determines an individual’s empowerment is the – counter-factual or hypothetical – capability set that results from this interplay, which is comprised of all of those bundles of functionings that are attainable by means of resources and utilization functions. But within the range of the capability set, the individual can realize only one.

Of course, Sen himself points out (1987, p. 36) that it often makes sense to concentrate on functionings and to assess the current bundle of functionings in all of its multidimensionality. However, he subsequently argues that curtailment of options can itself lower the standard of living, even if the chosen option remains available. He illustrates this by pointing out the distinction between fasting and starving: Fasting is only fasting if the option to eat something remains open; otherwise, we call it starving.

² Statistical independence exists if the dimensions are located orthogonal to each other, and are thus not correlated.

Thus, the question becomes: how can capability sets be assessed if they only consist of hypothetical options? Essentially, there are two strategies for assessing capability sets: the first strategy relies on using common items in surveys that take into consideration aspects of capability. The second strategy takes off from creating items that assess the element of opportunity entailed in capabilities. Thus, the first strategy is utilized for secondary studies and the second for primary studies. These strategies will be presented in more detail in the corresponding sections.

2. Labor and wellbeing in economics

The field of labor has always been of special interest for economic science. Many branches of the discipline deal with labor: the theory of the household and the theory of the firm in microeconomics, macroeconomic theory and policy, human resource management, industrial or labor relations. The branch of economics that is concerned with measuring wellbeing – welfare economics – is based on microeconomic theory. In traditional microeconomics, labor is seen as a good that households offer to enterprises. Thus, in opposition to the market for goods and services the households form the supply side of the market and the enterprises the demand side. Households are assumed to choose between two goods, namely consumption and leisure in their decision on how much labor to offer by traditional microeconomics. In this model, labor is not a good, but a means to consumption for households and an input factor in production for the enterprises. Traditional microeconomics thus separates the spheres of production and consumption: The firms produce goods and services with the help of inputs; they aim at maximizing profits; households consume goods and services from which they derive utility; they aim at maximizing utility by means of maximizing consumption and leisure.

It's no news that this simplistic view does not capture the role of labor in human life. Work can neither be seen as a mere bad nor as a mere good. Sen (1975, p. 5) early distinguished three aspects of labor: the income aspect, the production aspect and the recognition aspect. While the first two are covered by the microeconomic model, the latter may be introduced to it by assigning utility gains to working. However, if labor is treated like a consumption good, it cuts across the separation between production and consumption. This challenges economic theory.

Further, lots of work is not carried out for an enterprise, but within the household. Gary Becker (1976) took account of this by modeling the household in analogy to the firm as the place where reproduction is carried out, both in terms of recreation of the existing labor force and raising new laborers. This broadened the perspective substantially and entails the same problem as before: Reproductive work is seen only as labor and the consumptive aspect of cooking, caring for children or learning is disregarded. However, there are good reasons for seeing work as a source of both utility gains and losses. In consequence, economic literature on labor and labor market tends to challenge the separation between production and consumption.

A multidimensional conception of wellbeing like that of the CA dismisses this separation completely since wellbeing is seen as having an irreducible plurality of constituents. Without a unique measure of wellbeing such as utility the question of what constitutes wellbeing arises (section 1.1) and diverse factors and their interaction come

to the fore. In the case of labor this leads to an understanding of labor that goes beyond paid employment and includes informal employment as well as home production, care work and household chores. Further, work is not reduced to a means of earning a living or an input factor for production but seen as an intrinsically valuable activity and hence a relevant dimension. Yet, the aspect of recognition is hard to grasp even in this framework since work is instrumental to gaining recognition and this contributes to the value of working.

3. Use of secondary data

Secondary studies rely upon existing data sources. Since the quantity of such statistical data obtained for the most diverse purposes is increasing, this offers many possibilities. Chiappero-Martinetti and Roche (2009, p. 167) describe the advantages of a secondary study as follows: “First, it generally makes use of large-scale, random sample surveys that are statistically representative of the whole population. Second, the availability of multiple data sources makes it possible to compare trends over time and allows complementary data analysis [...]. Third, the same dataset can be analyzed from different disciplinary perspectives thereby contributing to a greater multidisciplinary understanding. Fourth, the number, size and reliability of data archives have grown substantially over the last two decades and many datasets, already cleaned and stored in electronic format and thus ready-to-use, are now freely available on the Web.”

The greatest drawback of secondary studies is that their data was collected in another context³, and thus, the question always arises to what extent these data are suitable for capturing the model of the CA. This is true both for the question of which dimensions to include in the analysis, and for the ways they will be collected and processed. Therefore, in a certain sense, the research question is subject to the dictates of the data. Today, however, a lot of studies are pooled and build a data infrastructure that is not only accessible, but is continuously adjusted in response to research demands. Yet, the question of international and intertemporal comparability is still an issue.

Given these conditions, it should not come as a surprise that secondary studies are characterized by a panoply of different research methods. They employ a great variety of analytic procedures in order to adequately translate the concept of the CA. In addition, they have examined a wide variety of research questions.

The subsections below are roughly oriented to a classification given by Sen (1999) distinguishing between (1) full comparison, (2) partial ordering, and (3) comparison of selected functionings or capabilities. This paper distinguishes only between studies that strive for a comprehensive comparison (Table 3) and studies related to the specific dimension of labor or labor-related groups such as the unemployed (Table 4).

Alkire (2008) divides studies about the CA according to their objectives into prospective and evaluative analyses. In principle, the focus of the CA would be on evaluative analysis, but a few studies attempt to go beyond this to suggest recommendations about how certain objectives might be achieved (prospective analysis). For this pur-

³ Mainly inspired and informed by social indicators and quality of life research. For Germany, see e.g. Krupp and Zapf (1977).

pose, they not only need to determine whether an individual's bundle of functionings has improved but also how and why. This classification runs counter to that used in the tables, but it allows for drawing links between certain methods and the objectives (see below).

Finally, how a study meets the second challenge in operationalization is of great importance to the CA – whether it is based on observation of functionings or an attempt to assess capability sets in some manner. Since most studies do not extend beyond a consideration of functionings, we might well ask whether they are truly studies about the CA at all. Comim (2008, p. 176) warns that mere espousal of the CA will amount to nothing more than lip service if studies fail to wrestle with such conceptual difficulties. Nevertheless, in this paper, we will include all studies that explicitly refer to the CA as their conceptual basis.⁴ The studies that extend beyond functionings will be marked in bold print on the tables.

3.1 Comprehensive measurement of poverty and wellbeing: multiple methods

Table 3 lists studies that seek to measure poverty and wellbeing comprehensively, and are thus not limited to examining single dimensions or individual groups. The table is organized according to the methods of data analysis employed and is thus divided into analytic procedures that seek to discover structures versus procedures that examine structures (Everitt & Dunn, 1991). The list begins with studies using multivariate procedures such as principal component and factor analysis, correspondence analysis and cluster analysis aimed at discovering deeper structure in a correlation. Chiappero-Martinetti and Roche (2009) call them data reduction methods since they make it possible to reduce the quantity of data by combining several individual variables into one dimension.

Fuzzy-set analysis presumes the existence of a particular structure, but introduces vagueness or imprecision by not undertaking a precise delineation of the fuzzy set and accepting fuzzy values. Chiappero-Martinetti (2008) argues that this is a way to capture the opportunity aspect of capabilities. She applies the method to the issue of poverty allowing the degree of membership to the group of the poor to increase gradually according to the magnitude of functionings achieved by the individual

While fuzzy set methods introduces fuzziness related to a quantity by means of a membership function, stochastic dominance (see Table 4) starts out from the achieved functionings to be compared, for example, the functionings achieved by various individuals. The primary aim of this method is to evaluate the standard of living, but in addition, it analyzes when and depending upon what circumstances, these conditions might change, thus taking a significant step in the direction of explanation and prospective analysis.

Regressions differ from the methods described thus far in that they take the nature of the structure as more or less given in advance, and seek to examine that structure. Ordinary least squares regressions are applied as well as probit or logit regression models which serve to test whether income considered alone is sufficient to explain

⁴ By contrast, Chiappero-Martinetti und Roche (2009) also evaluate studies that deal generally with the problem of multidimensionality.

Table 3: Variety of methods in studies on poverty and well-being

Author / year	subject	methods	region	data-base
Klasen 2000	Poverty	Principal component analysis, Index	South Africa	PSLSD (SALDRU)
Rahman, Mittelhammar, & Wandschneider 2001	Well-being	Borda-Rule, Principal component analysis	Country comparison study	various statistics
Neff 2007	Well-being and ethnicity	Correspondence analysis	South Africa	SALDRU 1993
Balestrino & Sciclone 2000	Well-being	Factor analysis	Italy	ISTAT / Italian environmental ministry
Lelli 2008	Well-being	Fuzzy-set, Factor analysis	Italy, Belgium	PSBH (ECHP)
Qizilbash 2003	Poverty	Fuzzy-set	South Africa	
Qizilbash & Clark 2005, Clark & Qizilbash 2003, 2005	Poverty – Dimensions	Fuzzy-set	South Africa	SALDRU 2001, PSLSD
Chiappero Martinetti 2000	Well-being / Poverty	Fuzzy-set	Italy	ISTAT
Brandolini & D'Alessio 1998	Well-being / Poverty	(sequential) dominance	Italy	SHIW
Balestrino 1996	Poverty	Description of individual functionings	Pistoia (Italy)	Data of communal welfare program
Anand, Hunter, & Smith 2005	Well-being	Regression (of satisfaction)	Great Britain	BHPS
Anand & van Hees 2006	Well-being	Regression (of satisfaction)	Great Britain	Primary study
Anand, Santos, & Smith 2007	Well-being	Regression (of satisfaction)	Great Britain	YOUNGOV
Anand et al. 2009	Well-being	Regression (of satisfaction)	Great Britain	YOUNGOV
Lovell u. a. 1990	Well-being	Input-Output Model, Indices	Australia	ASLS
Binder & Broekel 2008	Well-being, efficiency of resources	"Transformation-curve" for functionings	Great Britain	BHPS
Ramos & Silber 2005	Well-being	Efficiency	Great Britain	BHPS
Ruggeri Laderchi 1997	Poverty	Probit analysis	Chile	CASEN
Kuklys 2005	Well-being; housing, health	MIMIC	Great Britain	BHPS
Wietzke 2009	Well-being	Group inequality, refined functionings, linear regression	Madagascar	DHS
Krishnakumar 2007	Well-being;	Econometric model, structural equations	Country comparison study	UNDP, Worldbank statistics of various countries
Ballon & Krishnakumar 2008	Poverty	Econometric model, structural equations, index	Bolivia	MECOVI 2002 and complementing data
Alkire & Foster 2007	Poverty	Alkire Foster Index	India	NFHS
Alkire & Seth 2008	Poverty	Alkire Foster Index	India	NFHS
Santos & Ura 2008	Poverty	Alkire Foster Index	Bhutan	BLSS
Arndt & Volkert 2011	Poverty (and wealth)		Germany	SOEP

Bold letters stand for a study aiming at capabilities (in contrast to functionings);

Abbreviations: ASLS – Australian Standard of Living Study; BHPS – British Household Panel Survey; BLSS – Bhutan Living Standard Survey; CASEN – Encuesta de Caracterización Socioeconómica Nacional, Chile; ECHP – European Community Household Panel; ISTAT – Italian central Statistical office; MECOVI – National Household Survey by the National Statistical Institute of Bolivia with the help of the World Bank; NFHS – Indian National Family Health Survey; PNAD – Pesquisa Nacional por Amostra de Domicílios, PSBH – Panel Studies of Belgian Households; SALDRU – South African Labour and Demographic Research Unit at the University of Cape Town; SHIW – Survey of Household Income and Wealth (Italy); SOEP – German Socio-Economic Panel Study; UNDP – United Nations Development Program; WHO – World Health Organization

deprivation, or if other factors must be included (Ruggeri-Laderchi, 1997, 2008). In order to take multiple indicators and multiple causes (MIMIC) into account structural equation modeling is frequently used in CA analysis combining factor analysis and regression into a single step. This makes it possible to describe a complex structure and develop recommendations for the future (prospective analysis).

What is to my knowledge missing so far are applications of advanced models of psychometric scaling such as the Rasch model, despite the inclusion of personality trait items in quite a few surveys.

By contrast to regressions and the like, indices primarily aim at evaluating the life situation. They presume a particular structure, that is, they define poverty or wellbeing subject to various dimensions. In the narrower sense, the underlying structure is neither discovered nor examined.

3.2 Secondary studies on labor-related issues

Secondary studies of labor-related issues are partial comparisons of wellbeing that either only look at labor-related dimensions and the relationships between them, or only include specific groups of individuals in the analysis such as the group of the unemployed or young people entering the labor-market. Of course, both is closely related, since the groups share the characteristic of being disadvantaged with regard to a labor-related dimension such as being employed.

The main impetus of the secondary studies of labor-related issues based on the CA (Table 4) is to bring work in all its varieties to the fore going beyond paid employment. Several studies look at the quality of employment reminding us of the differences in paid employment with respect to yielding an income, social security, contractual status, employment stability and training (Sehnbruch, 2008; Cassar, 2010). These factors also contribute to job-satisfaction (Poggi, 2008; Cassar, 2010). Other studies include the unemployed (Schokkaert & Van Ootegem, 1990) or differentiate between voluntary and involuntary inclusion in or exclusion from the labor market (Burchardt & Le Grand, 2002; Strotmann & Volkert, 2008). Further, several studies investigate the conditions that support or impede young people entering the labor market (Defloor, Van Ootegem, & Verhofstadt, 2009; Bartelheimer, Büttner, & Schmidt, 2011; Vero, 2002).

The studies display a broad range of methods with a focus on multivariate analyses. Some have introduced innovative models for the application of the CA. For example, Schokkaert and Van Ootegem (1990) were the first to use factor-analysis for determining relevant dimensions. Burchardt and Le Grand (2002) first employed the idea of assessing capabilities by looking at the opportunities open to people and the constraints they face. Defloor, Van Ootegem, and Verhofstadt (2009) follow traditional microeconomic methods for assessing capabilities. They project a transformation curve, which they interpret as representing the limits of the capability set. Further, Bartelheimer, Büttner, and Schmidt (2011) look at trajectories and thereby integrate a dynamic aspect.

The results brought about are not new in a narrow sense: Much of the literature on job-satisfaction for example has already discovered the same contributing factors that are mentioned by CA-studies (cf. Leßmann & Bonvin, 2011). The issue of job-

quality has been investigated long before (e.g. Jurgensen, 1978), as well as the interdependence between unemployment and satisfaction that points to the importance of the recognition aspect (e.g. Grözinger & Matiaske, 2004). The CA offers, however, a new inclusive framework: It dissolves the conflict between work as factor of production and the consumptive aspect of work; it extends to all kinds of work, including care giving, informal work and household chores thereby attaching weight to (recognizing) the work and wellbeing of women and unemployed (cf. section 2).

Table 4: Secondary studies on labor-related issues

Author / year	subject	methods	region	data-base
Schokkaert & Van Ootegem 1990	Well-being of unemployed	Factor analysis	Belgium	Questionnaire
Sehnbruch 2003, 2008	Quality of employment	Index of job quality	Chile	Representative survey by the author
Cassar 2010	Quality of employment, job-satisfaction	OLS, logit model	Chile	CASEN/OPHI
Poggi 2008	Job-satisfaction	Maximum likelihood, stochastic frontier	Europe	EWCS
Burchardt & Le Grand 2002	Capabilities for employment	Probit analysis	Great Britain	BHPS
Strotmann & Volkert 2008	Labor market opportunities	Descriptive statistics, multivariate probit analysis	Germany	SOEP
Defloor, Van Ootegem, & Verhofstadt 2009	Efficiency in entering the labor market	Transformation curve for functionings, regression	Flanders (Belgium)	SONAR
Bartelheimer, Büttner, & Schmidt 2011	Labor market capabilities in the course of live	Cluster-analysis, clustering of trajectories	Germany	SOEP
Vero 2002	Poverty , young people entering the labor market	Fuzzy-set, refined functionings	France	Polling by Céreq

Bold letters stand for a study aiming at capabilities (in contrast to functionings) ; Abbreviations: BHPS – British Household Panel Survey; CASEN – Encuesta de Caracterización Socioeconómica Nacional, Chile; Céreq – Centre d'études et de recherches sur les qualifications (France); EWCS – European Working Condition Survey; OPHI – Oxford Poverty and Human Development Initiative (Missing dimensions of poverty, see 3.2); SOEP – Socio-Economic Panel Study (Germany); SONAR – data-base created for studying the transition of Flemish youth into the labor market, combination of repeated cross-section and longitudinal questioning.

4. Generation of primary data

There are basically three reasons for wanting to have primary data: first, several dimensions repeatedly specified as relevant in the CA are not, however, included in socioeconomic surveys about living standards, including the functioning of being seen in public without shame, or the functioning of being recognized by others for one's work. These deficiencies generate a wish to supplement surveys with items that address these dimensions. Second, freedom of choice has a large role in the CA. The assumption that one can gather information about freedom of choice through surveys – and thus about the size of the capability set – is at the heart of the second strategy for meeting this challenge.

The third reason for seeking primary data is to address the wider question of which dimensions are relevant to the CA. According to Sen, it is those aspects of life that we have reason to value which should be regarded as functionings. Accordingly, many studies address the question: which aspects of life do we value? Do all individuals (children and poor people as well) have a clear idea about these values? Is the list of relevant dimensions obtained in this way universally valid? We are not going to consider the primary studies related to this in further detail (Clark, 2002; Biggeri et al., 2006; Comim, 2008; Graf, Germez-Castro, & Babic, 2011), but we should note that their objective is the selection of relevant dimensions (see above).

The next two subsections will address in turn the two most important projects for collecting primary data related to the CA. The last subsection summarizes the findings on labor-related issues.

4.1 *The Capabilities Measurement Project (Paul Anand)*

Motivated by the observation of the inadequacy of available data in multiple respects, Paul Anand, in collaboration with a number of other researchers, launched a project for measuring capabilities.⁵ Building on Anand's work on social choice and decision theory, the initial focus of the project has been on developing items related to an individual's personal perception of his/her own freedom of choice (Anand & Van Hees, 2006). The analysis of the representative survey developed in this project additionally showed that the responses to general items on life satisfaction were strongly correlated with the perception of having diverse options. Therefore, the studies use responses about life satisfaction as a dependent variable that can be explained by the achievement of various functions.

The project's second focus⁶ has been on developing items for all relevant dimensions. The dimensions considered relevant were taken from Nussbaum's list of central functional capabilities (see Appendix). Anand, Hunter and Smith (2005) analyze which of these dimensions have already been queried through the British Household Panel Survey (BHPS). Their list includes 28 items about specific dimensions and two items about satisfaction. Building upon this, Anand, Santos und Smith (2009) made a recommendation of how one might ask about those dimensions that have been omitted or insufficiently assessed. This expanded list contains 65 items about dimensions and satisfaction.

Table 5: Typification of items about capabilities

Type 1: Externally oriented questions about opportunity
Type 2: Explicit questions about personal ability aspects of capability
Type 3: Explicit constraint questions
Type 4: Functionings probes combined with questions about reasons
Type 5: Functionings questions combined with a universality assumption

Based upon Anand, Santos, & Smith (2009, p. 286).

⁵ See under http://www.open.ac.uk/ikd/projects_capabilitiesmeasurement.shtml.

⁶ On their website, the third current focus of the project is cited as the selection of suitable analytic methods.

Anand, Santos, and Smith (2009, p. 286) differentiate among five types of items (Table 6) that contain information about capabilities, and thus provide indications about the potential contribution of the second strategy for assessing options. As examples, they cite asking about the availability of an automobile, etc. (Type 1), and about factors that might prevent the respondent from moving away.⁷ By asking about the reasons that certain functionings have not been achieved, such as asking why the respondent has not purchased a house, they hope to obtain information about the respondent's preferences (Type 4). Finally, they classify having experienced acts of violence as a specific index for restricting the capability set (Type 5). However, they do not provide a complete allocation of the items to their categories. They add only one additional criterion, which is that they would prefer to use the items from the British Household Panel Survey, whenever possible (for the sake of comparability).

4.2 OPHI: Missing Dimensions (*Sabina Alkire*)

The Oxford Poverty and Human Development Initiative (OPHI), launched by Sabina Alkire in, 2007, is dedicated to systematic research about those dimensions of poverty that have been insufficiently assessed in previous data sources about the standard of living. The OPHI began with two workshops, where the researchers identified five dimensions that they would initially address (Table 7). In this regard, Alkire (2007a) used Robeyns' selection criteria (Table 2) with the exception of the 'sensitivity to context' criterion. As Alkire (2007b) stresses, the final dimension they selected cannot be viewed directly as a missing dimension in the measurement of poverty, but rather as an element contained in all the other dimensions.

One might ask whether this caveat is not all the more applicable to the second dimension, "empowerment/agency," which is situated at the transition point from measuring functionings to measuring capabilities (see below).

Table 6: OPHIs Missing Dimensions of Poverty

1. informal employment
2. empowerment/agency
3. physical safety
4. ability to go about without shame
5. psychological and subjective well-being

Own compilation based on Alkire (2007b)

The aim of the efforts is to develop a block of five to eight items for each of these dimensions that could be integrated in surveys. The selection of these items is guided by the following criteria ⁸ (Table 8):

⁷ Anand, Santos and Smith characterize this as a Type 2 question, but they do not provide any examples for Type 3, so the question remains whether this classification might be mistaken.

⁸ Another, longer list with desirable characteristics of indicators can be found in Comim (2008: 194).

Table 7: Criteria for the selection of indicators

<p>The indicators ...</p> <ol style="list-style-type: none"> 1. need to be <i>internationally comparable</i>. 2. seek to assess not only the instrumental but also the <i>intrinsic</i> aspects. 3. should identify <i>changes</i> over time. 4. should draw on <i>experience with particular indicators</i> to date.

Own compilation based on Alkire (2007b)

Table 8: Indicators for empowerment

<ol style="list-style-type: none"> 1. <i>Power over/control</i>: How much control do you feel you have in making personal decisions that affect your everyday activities? 2. <i>Power to/choice</i>: five domains: (1) minor household expenditure; (2) What to do if you have a serious health problem; (3) How to protect yourself from violence; (4) Whether and how to express religious faith; (5) What kind of tasks you will do <ol style="list-style-type: none"> a) When decision are made regarding the following aspects of household life, who is it that normally takes the decision? (if not the respondent, ask b) b) To what extent do you feel you can make your own personal decisions regarding these issues if you want to? c) How true would it be to say that your actions with respect to (one of the five domains) are motivated by a desire to avoid punishment or to gain reward? d) How true would it be to say that your actions with respect to (one of the five domains) are motivated by a desire to avoid blame, or so that other people speak well of you? e) How true would it be to say that your actions with respect to (one of the five domains) are motivated by and reflect your own values and/or interests? 3. <i>Power from within/change</i>: <ol style="list-style-type: none"> a) Would you like to change anything in your life? b) What three thing(s) would you most like to change? c) Who do you think will contribute most to any change in your own life? 4. <i>Power with/community</i>: Do you feel that people like yourself can generally change things in your community if they want to?

Compiled from Ibrahim & Alkire (2007)

OPHI places great value on international comparability. However, comparability often runs contrary to context sensitivity, which emphasizes finding ways to query about a dimension in the specific (cultural) context of a particular country.⁹ The second criterion points out the close connection between the selection of valued dimensions and the method for obtaining information about these dimensions. In this regard, one could draw upon those primary studies that specifically address the question of which dimensions people value. The third criterion values the assessment of change, even

⁹ For example, when I was kindly offered by Jean-Louis Arcand to insert one page of questions inspired by the capability approach in an impact evaluation study he carried out on behalf of the World Bank in the Gambia in, 2008, I used a BHPS item on food. In the pretest, the people found this item derogative. I couldn't use it in the end. More information can be found in Leßmann, 2011b. The data is currently analysed.

though OPHI is not primarily engaged in measuring the success of policy measures, but rather, in measuring poverty. Finally, OPHI has taken on the goal of examining the empirical instrumentarium from a broad range of disciplines (anthropology, psychology, etc.) as a way to fulfill the final criterion, which is to make use of previously tested indicators – perhaps in a different context.

Using these criteria, OPHI developed a recommendation for each of the five dimensions that included a block of items (Lugo, 2007; Ibrahim & Alkire, 2007; Diprose, 2007; Zavaleta, 2007; Samman, 2007), and was made available to the general public on the Internet together with instructions. Meanwhile, the first surveys using these blocks of items have been completed and are in the process of evaluation.

Since, as I would see it, the dimension of “empowerment” marks a transition from consideration of functionings to consideration of capabilities, the wording of the items for this particular dimension will be presented below (Table 8).¹⁰

4.3 Primary data and labor-related issues

While the capabilities measurement project does not look at labor-related issues specifically, it employs a strategy that was employed before by Burchardt and Le Grand (2002) in their study of employment capabilities: Anand and his collaborators approach the opportunity character of capabilities by introducing items about the opportunities and constraints people see when striving for wellbeing. This approach is especially suitable for capabilities which face a strong impact of social conversion factors such as social security systems. Anand and his colleagues fail, however, to introduce their classification scheme of opportunity and constraint items systematically.

In general, the studies generate primary data without designing new items in a systematic manner. They mainly rely on introducing items used in other fields, especially psychology, into household surveys. To my knowledge there has not been any attempt to create new items with the help of design theory such as facet theory that has been successful applied in the realm of work (e.g. Elizur, 1984).

Lugo (2007) developed for OPHI a set of items on informal employment based on the work of ILO on these matters. The items cover six aspects: (1) informality of the employment (size and registration of the enterprise, temporary or permanent employment, written contract and social security), (2) income from employment (including self-employment), (3) occupational hazard (accidents, illnesses and workplace exposures), (4) under-/overemployment (prefer to work more or less than at present), (5) multiple activities (number of income-generating occupations), and (6) discouraged unemployed (prefer to work but have stopped searching). While these items clearly broaden information on informal employment, they only make a limited effort to identify involuntary inclusion in or exclusion from the labor market as the studies by Burchardt and Le Grand (2002) as well as Strotmann and Volkert (2008) do. In particular, Lugo (2007) mentions that some researchers suggest to complement the item on discouraged employment with an item on child care facilities, but she doesn't go further in asking about time use or care-duties (not only child care, but also care for

¹⁰ See as well Burchardt and Holder (2012) who combine items taken from self-determination theory with the idea of opportunity and constraints or barriers.

elder or disabled family members). In some countries allowances for the elder constitute a strong incentive for their family to care for them as an alternative to paid employment (Leßmann, 2006). Such arrangements within the family can be quite similar to informal employment. Undoubtedly, they are important for assessing the employment opportunities of people. Their importance has been shown with respect to children (Basu, 1999) and women (Sen, 1975).

5. Conclusion

Although operationalizing the CA is challenging because of its multidimensionality and the role it assigns to freedom of choice in wellbeing, many studies meet these challenges in various ways. This survey provides an overview of empirical applications and the ways they meet the challenges of the CA with special attention to labor-related issues.

In general, Robeyns criteria for selecting relevant dimensions are too often neglected. As a minimum the dimensions and indicators should firstly be listed and secondly reasons for selecting them given. In the case of secondary studies, data availability is often the reason for disregarding certain dimensions. However, this should also be stated explicitly like e.g. Burchardt and Le Grand (2002) do. Selecting dimensions for studying labor-related issues requires first of all defining labor and sketching the role of labor in generating human wellbeing. Though the studies on labor-related issues based on the CA broaden the perspective, their starting point is the definition of labor as paid employment and their emphasis is on the empirical work rather than the conceptual foundation.

The most important methods for meeting the second challenge in operationalizing the CA – namely integrating freedom of choice – have been developed in studies on labor-related issues: Schokkaert and Van Ootegem (1990) first had the idea of viewing functionings as latent variables to be identified with the help of factor analysis; Burchardt and Le Grand (2002) were the first to look at opportunities and constraints; Bartelheimer, Büttner, and Schmidt (2011) first integrated a dynamic aspect by looking at trajectories. The innovative methods are, however, not only directed towards grasping the hypothetical nature of the capability set, but seek also to better understand the role of work for human wellbeing. Granting work an intrinsic value does not erase the instrumental value of work as an income generating activity, but points to the importance of employment quality, to the wide range of options people see and evaluate against paid employment as well as to the fact that the opportunities are open by varying degrees. The studies usually provide a brief conceptual framework, yet, this is almost all there is in the literature on the CA on labor-related issues. Clearly, more conceptual work is needed on these issues.

Primary studies play a minor role with regard to labor-related issues for two reasons: Firstly, there is a large infrastructure of labor-related data. Even complementary items on employment quality could be taken from work done by the ILO. Secondly, as stated before, more conceptual work has to be done in order to broaden the idea of labor beyond paid employment. In general, primary studies are used to ask people about their subjective assessment of the options they have. In the context of labor one could ask what alternatives they see and evaluate against paid employment. This type

of subjective items may be thought to contradict Sen's (1987, p. 14) aim to "move in the objectivist direction", but it is in line with the CA by respecting the agency of people.

Operationalizing the CA is a challenge and will remain challenging, but the existence of a panoply of empirical studies shows that it is possible to meet this challenge, though there is no unique answer to it. Labor plays a special role in generating human wellbeing. While the CA provides a broader framework that recognizes the intrinsic as well as the instrumental character of dimensions in general and of labor in particular, the empirical studies on labor-related issues resort to the traditional understanding of labor as paid employment, only adding the notion of informal employment. This shows that a conceptual foundation for dealing with labor in the CA is still missing.

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Appendix

Nussbaum's list of central functional capabilities

1. *Life*. Being able to live to the end of human life of normal length; not dying prematurely, or before one's life is so reduced as to be not worth living.
2. *Bodily Health*. Being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter.
3. *Bodily Integrity*. Being able to move freely from place to place; to be secure against violent assault, including sexual assault and domestic violence; having opportunities for sexual satisfaction and for choice in matters of reproduction.
4. *Senses, Imagination, and Thought*. Being able to use the senses, to imagine, think, and reason – and to do these things in a 'truly human' way, a way informed and cultivated by an adequate education, including, but by no means limited to, literacy and basic mathematical and scientific training. Being able to use imagination and thought in connection with experiencing and producing works and events of one's own choice, religious, literary, musical, and so forth. Being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech, and freedom of religious exercise. Being able to have pleasurable experiences, and to avoid non-necessary pain.
5. *Emotions*. Being able to have attachments to things and people outside ourselves; to love those who love and care for us, to grieve at their absence; in general, to love, to grieve, to experience longing, gratitude, and justified anger. Not having one's emotional development blighted by fear and anxiety. ...
6. *Practical Reason*. Being able to form a conception of the good and to engage in critical reflection about the planning of one's life. ...
7. *Affiliation*. A. Being able to live with and towards others, to recognise and show concern for other human beings, to engage in various forms of social interaction; to be able to imagine the situation of another and have compassion for that situation; to have the capability for both justice and friendship. ...
B. Having the social bases of self-respect and non-humiliation; being able to be treated as a dignified being whose worth is equal to that of others. This entails protection against discrimination on the basis of race, sex, religion, caste, ethnicity, or national origin.
8. *Other species*. Being able to live with concern for and in relation to animals, plants, and the world of nature.
9. *Play*. Being able to laugh, to play, to enjoy recreational activities.
10. *Control over one's Environment*. A. Political. Being able to participate effectively in political choices that govern one's life; having the right of political participation, protections of free speech and association.
B. Material. Being able to hold property (both land and movable goods); having the right to seek employment on an equal basis with others; having the freedom from unwarranted search and seizure.

Quelle: Nussbaum, 2000, S. 78ff