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The Capability Approach: A critical review of its application in health economics

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Abstract: The capability approach is an approach to assessing well-being developed by Amartya Sen. Interest in this approach has resulted in several attempts to develop questionnaires to measure and value capability at an individual level in health economics. The methods of measuring and valuing capability used in the questionnaires are critically reviewed in this paper. It is argued that the methods used to measure capability result in a capability profile that is often an inaccurate description of the individual's true capability set. In addition, existing methods of valuing capability do not consider that capability is a set, consisting of multiple combinations of functionings rather than a single combination, which means that existing methods of valuing capability may be inadequate. The difficulties in measuring and valuing capability faced by existing questionnaires means that using the capability approach in economic evaluations will require a significant amount of further research.

1 Introduction

The capability approach is an approach used in well-being assessment developed by Amartya Sen (1980) in “Equality of What” and expanded in his later works (see for example, Sen 1987a; Sen 1992; Sen 1999). Sen (1987a, pp.7–9) argued that well-being consists of ‘functionings’, which are the things someone achieves to do or be, and ‘capability’, which are potential combinations of functionings available to an individual. The capability approach can be contrasted with utility-based approaches, which entirely focus on happiness, preference-satisfaction, or choice; and resource-based accounts, which entirely focus on income or commodities (Clark, 2005).

Several papers have discussed the capability approach in relation to health economics theoretically (Anand, 2005; Cookson, 2005; Coast et al., 2008b). More recently, there have been practical applications of the capability approach in health economics with several attempts to develop questionnaires to measure and value capability at an individual level. In this paper, these new questionnaires are critically reviewed to assess whether they are able to operationalize the capability approach by measuring and valuing capability. Section 2 describes two key ideas of the capability approach, functionings and capability. Section 3 provides an overview of existing questionnaires. The remainder of the paper provides a discussion on the methods used to measure and value capability.

2 Functionings and capability

The distinction between functionings and capability is an important aspect of the capability approach. Functionings are the various activities one engages in, such as a work or leisure activity, or various things one is, such as happy or literate. An

individual's life and well-being can be described as a combination of these functionings. Sen (1999, p.75) has argued that measuring the achieved combination of functionings of an individual is not always enough to assess well-being. There should be a role for an individual's "freedom to achieve". This freedom is represented by an individual's capability (Sen, 1993, p.38). Capability is the set of potential combinations of functionings available to an individual (Sen, 1987a, p.9, 1999, p.75, 2009, p.234) and represents the potential ways the individual could choose to live.

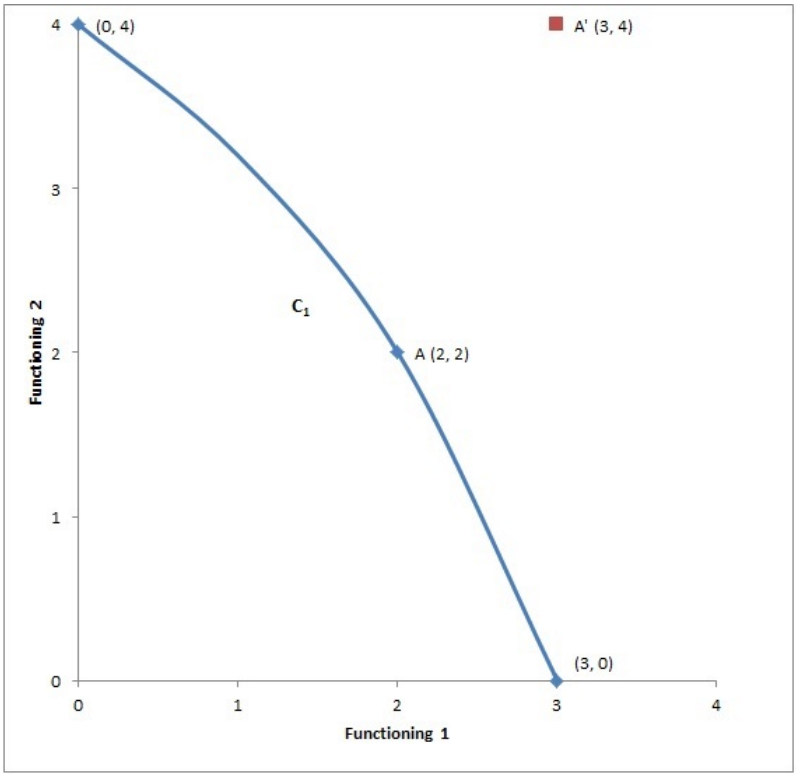
The importance of capability in the assessment and comparison of an individual's well-being is based on the importance of choice and opportunity (Sen, 1993, pp.38–40). An individual's well-being is improved by having more choices. For example, someone who can choose between multiple careers is better off than someone who is limited to one career only, even if both prefer the same career. The capability approach assumes that additional choices improve well-being, even if the preferred choice of an individual was already available to him. In this respect, the capability approach differs from the standard economic model (Bleichrodt & Quiggin, 2013; Sen, 1987a; Cookson, 2005).

Capability also matters because an individual may have better opportunities available to him than he is currently achieving. An often-quoted example is that someone voluntarily fasting may have the same nutritional intake as someone who is starving. Yet, the individual who is fasting has the capability and opportunity to eat, and is therefore better off than someone starving because of poverty. The notion of capability, thus, reflects both the intrinsic value of having choices and the opportunity to achieve more valuable functionings (Sen, 1999, pp.75–76).

The difference between capability and functionings can be shown graphically (Cookson, 2005). In Figure 1, the two axis represent two functionings and points A

and A’ are two combinations of functionings. Capability is described in functionings terms, and is a set made up of points in the space of functionings. A capability set can be represented as the equivalent of a budget constraint, showing all the various combination of functionings that an individual can achieve, for example line C_1. Point A is achievable while A’ would not be achievable for an individual with capability set C_1.

Figure 1 Example of two functionings and one capability space



3 Overview of existing capability questionnaires

A number of capability-based questionnaires have been developed for use in healthcare. The OCAP-18 for use in public health (Lorgelly et al., 2008) and the Oxford CAPabilities questionnaire-Mental Health (OxCAP-MH) for use in mental health (Simon et al., 2013) are both based on previous work on a generic capability instrument (Anand et al., 2005, 2009). The ICEpop CAPability (ICECAP) family consists of the ICECAP-O a version for older people (Coast et al., 2008a), ICECAP-A an adult version (Al-Janabi et al., 2012), and a measure for economic evaluation in end of life settings, ICECAP-SCM, which is in development (University of Birmingham, 2013). There is a measure for those experiencing chronic pain (Kinghorn, 2010; Kinghorn et al., 2014), and an adult social care outcomes toolkit (ASCOT) which combines both functioning and capability (Netten et al., 2012). The questionnaires are described in Table 1. The next paragraphs discuss the method the questionnaires use for measuring and valuing capability.

Table 1 - Overview of capability questionnaires developed for use in healthcare

Questionnaire	Target population	Domains or functionings	Example of Questions	Wording used to measure Capability	Valuation method
OCAP-18[1]	Public health services	Life expectancy, Daily activities, Suitable Accommodation, Neighbourhood safety, Potential for assault, Freedom of expression, Imagination and creativity, Love and support, Losing sleep, Planning one's life, Respect and appreciation, Social networks, Discrimination, Appreciate nature, Enjoy recreation, Influence local decisions, Property ownership, Employment discrimination	"I am free to decide for myself how to live my life." (5 point scale: Strongly agree to Strongly disagree) "In the past 4 weeks, how often have you been able to enjoy your recreational activities?" (5 point scale: Always to Never)	Using the phrase "am able to" and "am free to" Or, directly as why someone did not achieve a functioning	No valuation, temporarily used equal weights
OxCAP-MH[2]	Mental health services	Everything above minus employment discrimination, but including activities/employment	"I am able to influence decisions affecting my local area" (5 point scale: Strongly agree to Strongly disagree) "How likely do you think it is that you will experience discrimination?" (5 point scale: Very likely to Very unlikely)	Same as OCAP-18	Equal points for each level of each domain and zero following death
ICECAP-A[3]	General well-being - adults	Stability Attachment Autonomy Achievement Enjoyment	1. Feeling settled and secure I am able to feel settled and secure in all areas of my life (4) I am able to feel settled and secure in many areas of my life (3) I am able to feel settled and secure in a few areas of my life (2) I am unable to feel settled and secure in any areas of my life (1)	Using the phrase "I am able to be" or "I can"	Best-worst scaling

[1] Source: (Lorgelly et al., 2008)
[2] Source: (Simon et al., 2013)
[3] Source: (Al-Janabi et al., 2012; Flynn et al., 2013)

ICECAP-O[4]	General well - older people	Attachment Security Role Enjoyment Control	1. Love and Friendship I can have all of the love and friendship that I want (4) I can have a lot of the love and friendship that I want (3) I can have a little of the love and friendship that I want (2) I cannot have any of the love and friendship that I want (1)	Using the phrase "I am able to be" or "I can"	Best-worst scaling[5]
Chronic Pain[6]	Quality of Life in Patients with Chronic Pain	Love and social inclusion, Enjoyment, Respect and Identity, Remaining physically and mentally active, Independence and autonomy, Societal and family roles, Physical and mental well-being, Feeling secure about the future	"Over the past month I have been able to (or would have been able to) pick up, physically protect and hug young children:" (4 point scale: With no difficulty or pain to I do not (would not) do this because my pain is too severe)	Using the phrase "being able to" or "I have had the opportunity"	Multi-attribute value (MAV) method
Ascot – SCRQoL SCT4[7]	Social care services	Control over daily life Personal cleanliness and comfort Food and drink Personal safety Social participation and involvement Occupation Accommodation cleanliness and comfort Dignity	"Which of the following statements best describes how much control you have over your daily life?" I have as much control over my daily life as I want I have adequate control over my daily life I have some control over my daily life but not enough I have no control over my daily life	By assessing "whether or not people are able to achieve their desired situation"	Best-worst scaling

[4] Source: (Grewal et al., 2006)
[5] Source: (Coast et al., 2008a)
[6] Source: (Kinghorn, 2010; Kinghorn et al., 2014)
[7] Source: (Netten et al., 2012)

All the questionnaires, except the ASCOT, attempt to describe an individual's capability set by including phrases such as "being able to" or "can" in each item. For example, they may ask whether one *is able to* feel secure, *free to* decide or *can* achieve to identify potential functionings with the capability set regardless of whether they are used or not. In comparison to conventional questions that only ask whether one feels secure, does decide, or has achieved, which is focus on funcitonings. The ASCOT considers "whether or not people are able to achieve their desired situation" as a measure of capability (Netten et al., 2012).

None of the questionnaires have used traditional health state valuation techniques such as time trade off, standard gamble, or visual analogies scales (Brazier et al., 2007). For example, the measure by Kinghorn (2010) was valued using the multi-attribute value method, which is similar to the multi-attribute utility theory but does not use uncertainty or choice, but rather a scale from 0 to 100 (Kinghorn, 2010). Three questionnaires use best-worst scaling, which presents respondents with a state and asks them to pick the best and worst attribute in that state, given the attribute level (Coast et al., 2008a). The pair of attribute levels chosen represents the maximum difference "in the part-worth utilities" of the state, which can be used to obtain utilities for the each attribute level (Flynn et al., 2007).

The next two sections consider whether these questionnaires are able to overcome two difficulties in operationalizing the capability approach: measuring and then valuing capability sets (Cookson, 2005).

4 Measuring capability

The new capability questionnaires ought to distinguish between functioning and capability; however, the method of using phrases such as "are you able to" or "can

you" fails to achieve this. The questionnaires in effect ask an individual to respond with their highest possible achievement on each functioning, and therefore, measure the vector of (Max(f_1) ,…, Max(f_n)), where f_i are the various functionings measured. If an individual's capability space was C_1 in Figure 1, combining the highest achievable level for each functioning would result in the capability profile (3,4). It is clear that the point (3,4) is not an accurate description of the entire capability set C_1. In fact, that point is not even in the capability set. By measuring capability on each functioning independent of other functionings, the resulting combination is not achievable by the individual. This would be the case in any situation where there is a trade-off between domains, for example in an increasingly global world there may be potential trade-offs between stability and achievement domains of the ICECAP-A and empirical work has highlighted potential trade-offs between relationships and independence[1]**.**

Problems remain, however, even when there are no trade-offs between domains. In cases where a unique dominant functionings combination exists, one that is better than all other functionings combinations on one functioning and at least as good as all others on all other functionings, will this method produce a combination that is within the capability set. Table 2 lists three individuals' capability sets and its resulting measurement according to existing methods. Option (4,4) is a dominant choice for individual two. The existence of a dominant choice means that the individual faces no trade-off between the functionings, i.e. reducing achievement on one functioning would not allow them to increase achievement on another functioning. However, even when the measured capability profile is achievable, the questionnaires do not measure the range of choices in the capability set and only measure one combination, the unique dominant choice. Yet, recall that the intrinsic

[1] "I am married so you're never completely independent." (Al-Janabi et al., 2013, p.118)

value of choice is one of the two reasons for measuring capability rather than functionings.

Table 2 – Examples of capability sets, and the measured capability sets according to methods used in existing questionnaires

Individual	Capability set	Capability measured
1	(0,4) (2,2) (3,0)	(3,4)
2	(2,2) (4,4)	(4,4)
3	(2,2) (2,4) (4,2)	(4,4)

In addition to not adequately representing the capability set, this method of measurement will fail to distinguish between individuals with different capability sets. In Table 2, the capability set of individual two and three are both measured at (4,4), which would suggest that both have equal well-being. This is incorrect, as individual three cannot achieve combination (4,4), while individual two can.

By attempting to measure capability using highest possible achievement in each functionings, independent of other functionings, the measured capability profile is either an inaccurate description of the capability set and is not achievable by the individual, or may only represent the dominant option. In both cases, it is difficult to justify why this combination should be representative of the individual's capability set.

5 Valuing capability

Existing questionnaires have treated capability as one combination of functionings, rather than an entire set comprised of various combinations of

functionings. The value of the entire capability set is assumed to be equal to the value of only one element in that capability set. Thus, the value of the capability set of individual two in Table 2 is assumed to be equal to the value of point (4,4), rather than the entire set, which includes the combination of (2,2).

However, valuing capability sets requires additional considerations. Ideally, the valuation of a set must take into consideration both the number and quality of options available in the set. One suggestion is to consider the value of a set as a function of a maximal element and the number of choices in the set (Sen, 1987a, p.44). However, this approach ignores the value of the other choices within in the set and, as Sen (1987a, p.44) acknowledges, is somewhat arbitrary. Because of the added considerations of having multiple combinations in one set, the valuation of a set is more complicated than the valuation of a single combination (Cookson, 2005) and "the problem of set-evaluation raises interesting and difficult problems" (Sen, 1987a, p.38).

6 Conclusion

The attempt to operationalize the capability approach in health economics is a welcome development, but it is argued that it has not yet been fully achieved. Existing methods for eliciting capability do not measure a set of various combinations of functionings. Therefore, they cannot elicit capability as originally intended by the capability approach. By eliciting capability independently per functioning, their measurement, unless certain assumptions hold, represent a point outside the capability set. In addition, the measurement ignores the choices available to an individual, despite notion of choice being an important aspect of capability. There is

no existing method available to value sets and the valuation of capability needs to take into account that capability is a set, rather than a single combination.

Sen (2002) argues “in most situations, health achievement tends to be a good guide to the underlying capability, since we tend to give priority to good health when we have the real opportunity to choose (indeed even smoking and other addictive behaviour can also be seen in terms of a generated ‘unfreedom’ to conquer the habit, raising issues of psychological influences on capability)”. Therefore, it could be argued that in many cases functionings may be an adequate representation of capability. Yet, the direct measurement and valuation of capability is difficult. The difficulties in measuring and valuing capability indicate that attempting to use capability in economic evaluations will require a significant amount of further research.

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