

Poverty, time and vagueness: integrating the core poverty and chronic poverty frameworks

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In recent decades there have been considerable steps forward in terms of understanding poverty. This paper identifies three ‘meta-dimensions’ of poverty, which relate to: (i) depth and severity; (ii) breadth and multidimensionality; and (iii) time and duration. The advances that have been made in terms of conceptualising, measuring and analysing poverty in each of these areas are briefly considered. It is shown that the third and final ‘meta-dimension’—time and duration—has been neglected until relatively recently. It is argued that time, and, in particular, duration is an important analytical component for understanding the experience of poverty and the processes that create and reduce poverty. The final part of the paper suggests a way of integrating time into a unified framework for understanding poverty, which can deal with the depth, breadth and duration of poverty. This involves extending Mozaffar Qizilbash’s poverty and vagueness methodology to include duration.

Key words: Poverty, Vagueness, Time, Multidimensionality, Well-being
JEL classifications: B41, I31, I32, O10

1. Introduction

This paper has three main objectives. The first is to show that time in terms of duration is an important analytical component for understanding the experience of poverty and the processes that create and reduce poverty (and thus it is important for policy and action). The second is to consider the advances that have been made in conceptualising, measuring and analysing poverty in recent years—particularly in terms of breadth/multidimensionality and depth/severity. This confirms the advances made in these two meta-dimensions and reveals the more limited progress in the third dimension, time. The third and final part

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of the paper explores one possible way of integrating time into a ‘unified’ framework for understanding poverty, which is able to deal with the breadth, depth and duration of poverty. This approach involves extending Mozaffar Qizilbash’s poverty and vagueness methodology to include duration.

2. The meta-dimensions of poverty

In recent decades there have been considerable steps forward in terms of the conceptualisation, measurement and analysis of poverty. By drawing on the available literature this paper suggests it is possible to identify at least three ‘meta-dimensions’¹ of poverty, which are distinct from ordinary dimensions or components of poverty. The first recognises that poverty in any particular dimension—not necessarily income—has *depth* and may be far more serious in one case than another. The second recognises that poverty has *breadth* in the sense that it is multi-dimensional and is composed of a range of different capability, rights or need deprivations—such as illiteracy, poor health and physical insecurity—which go well beyond the traditional focus on income, consumption and resources. The third meta-dimension relates to time, and in particular to the *duration* of poverty, which has been neglected in the literature until relatively recently.² Each of these meta-dimensions is briefly considered in turn.³

2.1 *Depth and severity*

The dominant approach has been to view poverty in terms of lack of income or consumption. The informational requirement of such a measure is relatively narrow, which makes it easy to apply—particularly in relation to other more complex notions of poverty. One of the simplest and most widely used measures of poverty is the headcount index, which involves counting the number of people below a defined poverty line, and expressing this as a proportion of the total population. Leaving aside the very real issue of where to draw the poverty line, the headcount measure says nothing about the *extent* or *magnitude* of income shortfalls below the poverty line. Thus, a reduction in the income of any person currently below the poverty line will leave the headcount unchanged, *ceteris paribus* (Sen, 1981, p. 11). For this reason the headcount is often supplemented with the income (or poverty) gap. This measure gives the aggregate shortfall of income of all the poor below the poverty line. The income gap ratio is then given by the percentage short fall of the mean income of the poor from the poverty line. Like the headcount, the income gap ‘is completely insensitive to transfers of income among the poor so long as nobody crosses the poverty line. . .’ (Sen, 1981, p. 33). Unlike the headcount, however, it pays no attention whatsoever to the number or proportion of people below the poverty line.

¹ By meta-dimensions we are referring to overarching components of the concept of poverty. Within each meta-dimension there may be several sub-dimensions. For example, depth may incorporate headcounts, the income gap, and a measure of inequality among the poor (as we will see). Alkire (2002) discusses the characteristics of dimensions as normally understood in the development literature.

² There are exceptions, classically the work of Chayanov (1966, originally published 1915) and, later, Shanin (1972), which explored the ways in which the life cycle shapes the functioning and well-being of peasant households.

³ The case might be made that space (i.e. the geographical distribution of poverty) is a fourth meta-dimension. While the analysis of spatial patterns of poverty is important for understanding the processes that underpin poverty and for policy we do not think that the location of poverty needs to be part of the concept of poverty.

Given these limitations it is common to combine the headcount (how many) and income gap ratio (how far on average below the poverty line) with a measure of inequality below the poverty line (see Sen, 1976, 1981). The result is known as the Sen poverty index, which has been refined by Foster, Greer and Thorbecke (1984) to produce the FGT measure of poverty. The FGT has the advantage of being additively decomposable by different population sub-groups and uses a cardinal rather than an ordinal system of weights to compare the incomes of people below the poverty line. It is expressed as a combination of the headcount ratio, the income gap ratio and a measure of inequality shown to be the squared coefficient of variation (see Dercon, 2006; Foster *et al*, 1984; Foster and Sen, 1997).

All of the measures discussed so far incorporate the headcount, and therefore depend upon the identification of a poverty line. Selecting an appropriate poverty line raises a range of practical and methodological challenges (see Kanbur and Squire, 1999; Ravallion, 1998). A common approach involves deriving poverty lines from estimates of 'minimal nutritional requirements' or 'consumption norms' in particular societies. This approach, however, takes no account of the fact that nutritional and commodity requirements can vary quite widely both within and between countries. There are also difficulties in terms of defining these requirements, which depend on the choice of commodities and assumptions about the proportion of income spent on food, *inter alia* (Sen, 1981, pp. 11–14). Another approach involves estimating a subjective poverty line based on qualitative perceptions of 'consumption adequacy' among the poor (e.g. Pradhan and Ravallion, 2000). While this approach has the merit of being bottom up, an allowance inevitably has to be made for 'heterogeneity', as views about what constitutes poverty differ (Pradhan and Ravallion, 2000, p. 462).

One way of dealing with these problems is to identify more than one poverty line. This device has been used very effectively to distinguish between categories such as the 'moderate poor' and 'extreme poor' in Bangladesh and the 'poor' and 'very poor' in South Africa (Hirschowitz, 2000, p. 59; Rahman and Hossain, 1995).¹ A more sophisticated approach, however, involves allowing for 'vagueness' or imprecision in defining poverty lines. Cerioli and Zani (1990), for example, allow for the specification of a continuous range of poverty lines and rank the poor according to their level of disadvantage. From this information it is possible to compute the degree to which a person or group of people belong to the subset of the poor. This measure is absolute and captures the subject's proximity to the lowest specified poverty line. Cheli and Lemmi (1995) have criticised the arbitrary selection of poverty lines in this approach. They have developed an alternative fuzzy set theoretic measure that is *totally relative* in that it automatically equates the lowest (highest) achieved income with the lowest (highest) poverty lines. In this measure the degree to which a person or group belongs to the subset of the poor depends on the proportion of people with higher incomes.²

2.2 Breadth and multidimensionality

While the concern with measuring poverty in terms of income and commodity command has persisted, economists and other social scientists have increasingly recognised the need

¹ There is a growing literature on the incompleteness of welfare judgments and the use of multiple poverty lines, which relates to the 'dominance' or 'stochastic dominance' approach discussed by Atkinson (1987) and Foster and Shorrocks (1988) among others. This literature is not pursued in this paper.

² Qizilbash and Clark (2005) provide a formal treatment of these measures and consider their relevance for assessing different aspects of poverty.

to broaden conceptions of poverty and development. These concerns gave rise to the emphasis on ‘growth with redistribution’ and the basic needs approach to development in the 1970s and early 1980s (see Stewart, 1996, 2006; Streeten, 1995), which provided the impetus for the social indicators movement. Increasingly the emphasis moved from securing the *means* for eliminating poverty and achieving development (e.g. employment, equitable growth, access to basic need goods and services) to promoting the *ends* of human development.¹

The shift in emphasis from means to ends gave rise to the development of the capability approach (CA) pioneered by Nobel Laureate Amartya Sen (see Sen, 1980, 1984, 1985, 1993, 1999, 2005). The foundations of the CA can be found in Sen’s critiques of welfare economics (see Clark, 2002, ch. 2; Crocker, 1992), although the CA also has strong connections with the basic needs approach to development (Alkire, 2002; Stewart, 2006; Streeten, 1984) and roots that can be traced back to Aristotle, Adam Smith and Karl Marx, among others (see Clark, 2006). The central argument behind the CA is that standard economic approaches to welfare—based on utility or access to resources—exclude a great deal of relevant information and provide unreliable guides to poverty and well-being. The solution to this problem is to view poverty and well-being in terms of human capabilities or opportunities to achieve positive freedoms, such as being able to live long, be well nourished, achieve literacy, take part in community life and achieve self respect.

The CA has become increasingly influential in recent years and provides ‘the strong conceptual foundation’ for the human development movement (Fukuda-Parr, 2003, pp. 302–303). Along with Mahbub ul Haq and others, Sen played a crucial role in terms of refining and broadening basic concepts and measurement tools for the *Human Development Reports* (published annually since 1990), which have tackled a variety of issues ranging from consumption and sustainable development to poverty, human rights and democracy (see Fukuda-Parr, 2003; Haq, 1995). Moreover, despite initial resistance, Sen played a crucial role in developing the human development index (HDI) and human poverty index (HPI), which are based on three key components: economic means, survival and education (UNDP, 1990, 1997). Sen, however, remains concerned that such crude summary statistics cannot adequately capture the breadth or complexity of human development:

[The HDI] is a quick and imperfect glance at human lives, which—despite the crudeness it shares with the GNP—is sensitive, to a significant extent, to the way people live and can choose to live. . . However, the breadth of the human development approach must not be confused with the slender specificity of the Human Development Index (Sen, 2006, p. 257).

One well known attempt to broaden the human development approach has been made by Martha Nussbaum. Drawing heavily on Aristotle, Nussbaum (1990, 1995, 2000) has developed a list of ‘central human capabilities’. The latest version of this list (which has not changed that much over the years) covers: (i) life; (ii) bodily health; (iii) bodily integrity; (iv) senses, imagination and thought; (v) emotions; (vi) practical reason; (vii) affiliation; (viii) other species; (ix) play; and (x) political and material control over one’s environment (e.g. Nussbaum, 2003, pp. 41–42).² Attempts to identify valuable capabilities can be

¹ It has also been argued that a broader commitment to human development lies behind narrow economic concepts of development (see Clark, 2002, pp. 19–21).

² See Alkire (2002, ch. 2), Clark (2002, ch. 3) and Saith (2001) for summaries and discussions of other prominent lists. Sen has avoided endorsing a definite list of capabilities for practical and strategic reasons (Sen, 1993, p. 43, 2005; see also Qizilbash, 2002B).

criticised on the grounds that they are potentially paternalistic or tend to neglect historical or cultural differences. Nussbaum, however, argues that later versions of her list reflect 'years of cross-cultural discussion' (Nussbaum, 2000, p. 76). Closer inspection, however, suggests that nearly all the items on Nussbaum's list are derived from the writings of Aristotle (Nussbaum, 1990, n. 52–65; Clark, 2002, p. 78). Moreover, confronting Nussbaum's list of central human capabilities with the values and experiences of the poor implies some revisions might be in order (see Clark, 2002, 2003, 2005; Okin, 2003).

Thus the CA requires a great deal of (potentially controversial) information about the relevant dimensions and thresholds for specifying poverty, well-being and human development before it can be made operational (see also Clark, 2006; Sugden, 1993). A promising response to these kinds of difficulties involves developing a methodology that can capture some of this imprecision. Enrica Chiappero Martinetti (1994, 1996, 2000), for example, has developed a version of the CA that views deprivation (well-being) 'as a broad and fuzzy concept that is intrinsically complex and vague in the sense that it is not possible to contain within clear and unquestionable boundaries' (Chiappero Martinetti, 2000, p. 213). Instead of drawing clearly defined cut offs between opposite modalities (e.g. poor and non-poor), she recognises that deprivation (and well-being) are vague predicates that manifest themselves in varying degrees in given dimensions. Arguably, however, this approach does not capture all the ambiguity or imprecision that resides in the CA. A more sophisticated approach that considers an additional level of vagueness (concerning the dimensions of poverty and well-being) is considered in Section 4.

2.3 Time and duration

The breakthroughs in terms of conceptualising the depth and breadth of poverty were not generally matched by equivalent, systematic advances with regard to time prior to the late 1980s. While time has been incorporated into poverty analysis in many different ways, it is only recently that researchers have begun to explore the alternative conceptualisations that are available.

One way of incorporating time into the conceptualisation of poverty involves treating it as an ordinary dimension or component of poverty (e.g., Narayan *et al.*, 2000, pp. 21, 34, 91–2). In this approach a person can be classified as poor if he or she lacks the necessary time to realise valuable capabilities, such as being able to achieve adequate sleep and rest or spend time with family and friends (see Clark, 2002, ch. 4).¹ Such considerations indicate that control over time is at least as important as time itself. There is a big difference between the case of the migrant labourer who is forced into an endless cycle of work, travel and sleep to make ends meet (Clark, 2002, pp. 109–110) and the scholar or scientist who willingly trades leisure for work to boost personal fulfilment. These issues deserve attention and can be readily incorporated within the CA. In this paper, however, the focus is on treating time as a meta-dimension of poverty, rather than as an additional dimension of the breadth of poverty.²

Until the late 1980s the main ways in which time was included in poverty analysis was in terms of poverty trends, seasonality, the timing of experiences and historical accounts of

¹ There may be great inequality within the family in terms of time poverty. In particular, women often have to care for children and perform domestic chores (such as fetching water from distant wells or streams) in addition to participating in the labour market or taking part in subsistence farming.

² The framework developed below is perfectly consistent with treating time as a component of poverty as well.

poverty. Poverty trends commonly contrasted headcounts of poverty across a population at two different times. While they provide a general impression of whether poverty is increasing or decreasing between two points in time, they tell us nothing about the dynamics of poverty, i.e. whether or not individuals or households are persistently poor or move into and/or out of poverty over time (for some concrete examples see CPRC, 2004; Lawson *et al.*, 2003; Moore, 2005).

The seasonality of income, consumption and access to food was another focus with particular interest in the annual cycles of relative plenty and food shortage/hunger that occur in many rural areas (Chambers *et al.*, 1981). The significance of specific poverty experiences at certain times in the lifecourse was also highlighted with a particular focus on lack of access to food/nutrition for pregnant women and children and education. A lack of access to nutrition, basic health services or education in early life (foetal and infant) can have irreversible effects on the physical stature and cognitive ability of people (Loury, 1981; Strauss and Thomas, 1998; Yaqub, 2002). Historical accounts of poverty—seeking to lay out and interpret the main experiences and events in a chronological order—also continued (Geremek, 1994; Haswell, 1975; Hufton, 1974), although Iliffe's (1987) work moved things forward through its contrast of structural and conjunctural poverty in Africa, which went beyond the static poverty analyses of his era.

Since the late 1980s (Gaiha, 1989), as panel datasets have become increasingly available, econometricians have used measures based on spells in poverty to examine whether poverty is a transient or persistent experience. A landmark in these studies was the collection edited by Baulch and Hoddinott (2000). While this represented great progress in terms of analysing poverty in dynamic rather than static terms, these studies remained problematic in a number of ways. First, to operationalise time they assume that a household that is poor at t_1 and t_2 has been poor for all of the intervening period: for many households this may be an invalid assumption. Second, in the Baulch and Hoddinott collection and in more than 90% of dynamic studies up to 2004 (Hulme and McKay, 2008), poverty is assessed purely in terms of income or consumption. This is a conceptual shortcoming, as several studies observed in their endnotes, given the emerging consensus that poverty is a multidimensional phenomenon. Third, as both income and consumption are measures that can fluctuate greatly over short periods of time, studies based on these indicators are likely to make poverty appear to be a relatively transient experience. Measures based on a more holistic concept—literacy, nutritional status, housing quality—would produce a quite different picture. Fourth, the considerable measurement error associated with income and consumption, at both t_1 and t_2 , amplifies the degree to which poverty appears to be a transient and stochastic phenomena rather than a chronic and structural phenomena.

Recently the work of the BASIS CRSP programme (see Barrett *et al.*, 2006) has pushed forward thinking about asset based poverty traps (Carter and Barrett, 2006). This work has progressed both theory and empirical analysis, but the conceptualisation of time remains based around spells in income/consumption poverty. In terms of the focus of this paper, the advances in 'putting time on the map' of poverty analysis have not yet been related to the inherent vagueness of the dimensions of well-being, the identification of poverty lines and the duration of different poverty experiences for different dimensions.

Finally mention must be made of the conceptual and empirical significance of (easily) preventable deaths caused by poverty. Arguably, poverty analysis needs to encompass 'time lost', rather than transferring premature deaths to mortality statistics whilst reducing the income/consumption poverty headcount. The greatest poverty experience could be

conceptualised as totally losing all beings and doings for a fifty, sixty, seventy or perhaps eighty year period because of a preventable death.¹

3. Time matters: chronic poverty and poverty traps

There are a number of different ways in which time might be incorporated into the conceptualisation, measurement and analysis of poverty. Much depends on the meaning attached to time. Time can be construed in terms of (i) *clocks and calendars*, which measure linear time mechanically with reference to duration and intervals; (ii) *rhythms*, which focus on the mechanisms and power structures built into people and things as they move through time and change; and (iii) *histories*, which involve sequences of events and interactions between mechanisms and structures that lead to path dependence (see Bevan, 2004).²

This paper focuses on the linear conception of time, which is concerned with the duration of poverty.³ We believe that the ‘duration’ aspect of poverty merits particular attention for four main reasons:

- First there is a simple logic that says if x has experienced the same form and depth of poverty as y , but for a much longer period, then a moral concern with helping the most disadvantaged requires that x be prioritised and supported as s/he has experienced deprivation for longer than y . Notice that x is not poorer than y in this example, as the form and depth of the deprivation in question are equivalent. x , however, has been poorer for longer than y (possibly much longer than y), and arguably this ought to count for something, morally speaking. In this respect x can be regarded as more disadvantaged than y , even though x is not any poorer than y .⁴
- Second, a failure to analyse the *dynamics* of poverty is likely to lead to weak analyses of ‘why’ people are poor and, potentially, to weak policies (see also Section 2.3 and below). It is now generally recognised that the nature and causes of poverty can be fundamentally different in countries with similar poverty headcounts and poverty trends. For example, in countries where poverty is largely transitory (or experienced for short spells), relevant policy responses might include unemployment insurance and benefits, re-training programmes, micro-credit, temporary social safety nets and health services. In countries with deeper structural problems where a minority of the population become trapped in poverty for most or all of their lives, relevant policies may include access to health and education services, asset redistribution, tackling social exclusion and regional infrastructural development.⁵

¹ See Kanbur and Mukherjee (2006) for a rare exploration of this issue.

² Work on time has expanded rapidly in disciplines as diverse as economics, sociology and philosophy. In particular, several notable books have been devoted to time (e.g. Abbott, 2001; Adam, 2004; Elias, 1992). In addition, the interested reader might like to note that the journal *Time and Society* carries several articles on the social construction of time, including the way in which different cultures and societies perceive time and the way in which time is embedded within different theories, ideologies and paradigms (e.g. Hope, 2006; Postill, 2002; Torre, 2007). It is beyond the scope and purpose of this paper to dwell on such contributions.

³ Most of the existing literature on time and poverty is concerned with the linear conception. Bevan (2004) considers ways of incorporating rhythms and histories into poverty analysis and provides further references.

⁴ This is a matter of definition. If the dictionary definition of poverty is stretched to include duration, x would classify as poorer than y . In effect this involves arguing that the breadths, depths and durations of the deprivations x and y experience should be multiplied, and thus x will score a higher level of deprivation than y . If this computation were pursued it would be necessary to decide whether duration was computed as absolute time or relative time i.e. the proportion of x and y 's lives spent in poverty. The problem with such measures (and aggregate summary statistics generally) is that they conceal at least as much as they reveal about the nature of human poverty and deprivation.

⁵ For a discussion of these policy issues see Barrientos and Hulme (2008).

- Third, recent important work (Barrett, 2005; Carter and Barrett, 2006) has revealed the linkages between the depth of poverty, in terms of material and social assets, and duration with a focus on household level poverty traps. The assumption behind this work is that low levels of assets lead to persistent poverty (at least in the absence of financial markets and safety nets), but a conceptualisation is needed that will also permit an analysis of the ways in which the duration of poverty leads to depleted asset levels.
- Finally, the duration of time spent in poverty has important implications for individual or household future strategies. This is in terms of physical and cognitive capabilities and the ways in which past experience shapes the agency (motivation, preferences and understandings) of people.

A key distinction between the work in this paper and other recent attempts to incorporate time into the conceptualisation of poverty is its explicit recognition of poverty as a vague predicate in terms of all its meta-dimensions—including time.

4. Poverty and vagueness: towards a unified framework

As we have seen the *depth*, *breadth* and *duration* of poverty all matter and are essential for understanding human misery and deprivation. These three concepts are so central to our understanding of deprivation that they can be thought of as ‘meta-dimensions’ of poverty. Most of the existing literature has focused on either the depth or breadth of poverty, although some attempts have been made to combine the two (e.g. the HPI or Qizilbash’s vagueness methodology). Relatively little work has focused on the duration of poverty (see Sections 2 and 3). Moreover, most of the work that is concerned with the duration of poverty tends to neglect the breadth and often the depth of poverty.

To date no attempt has been made to integrate the depth, breadth and duration of poverty into a single unified framework. Such an ambitious project faces the conceptual, methodological and practical challenges associated with all three strands of the literature on poverty considered above (Section 2). As we have seen, one particularly grave problem they share relates to Amartya Sen’s (1981, p. 13) observation that poverty is a fuzzy or vague concept. Many different specifications of poverty are possible and seem plausible. Before an integrated framework for understanding poverty can be made operational we need to know which specifications are admissible. In other words we need information on not only the dimensions of poverty that are admissible and their corresponding thresholds or critical minimal levels, but on the duration of poverty as well. Each dimension (and cut off) may turn out to be associated with different duration thresholds, thus making this a potentially complex exercise.

4.1 Exploring Qizilbash’s vagueness framework

Several attempts have been made to develop frameworks that address the vagueness or imprecision of poverty. Nearly all of these frameworks, however, only address one type of vagueness (see Qizilbash, 2003, 2006). A notable exception is Qizilbash (2000, 2003; see also Clark and Qizilbash, 2002, 2005, 2008), who distinguishes between two types of vagueness, which relate to the breadth and depth of poverty, respectively. Thus, it is possible to distinguish between:

- *Horizontal vagueness*, i.e. vagueness or imprecision about the admissible dimensions of poverty; and

- *Vertical vagueness*, i.e. vagueness about the critical minimal level in a particular dimension at or below which someone must fall to classify as poor in that dimension.¹

Qizilbash's original framework draws on Kit Fine's (1975) 'superevaluationist' theory of vague predicates. In the context of poverty, this involves working with a set of admissible dimensions of poverty (and corresponding critical minimal thresholds), which allows us to distinguish between three different groups of people:

- *The core poor*, i.e. those who are definitely or unambiguously poor given the many dimensions and thresholds of poverty;
- *The non-poor*, i.e. those who are definitely not poor given the many different specifications of poverty; and
- *The vulnerable*, i.e. those who are neither definitely poor nor definitely non-poor in a given dimension.

Table 1 and Figure 1 attempt to clarify the framework and terminology. In Figure 1 there are five admissible dimensions of poverty (i.e. D_1, D_2, \dots, D_5), each of which has a range of admissible poverty thresholds or critical minimal levels (for D_1 the highest admissible critical minimal level is denoted by M_{1H} and the lowest admissible critical minimal level is denoted by M_{1L}). In terms of the vagueness methodology a dimension (or threshold) 'is admissible if it *makes sense* to treat it as a way of articulating the notion of poverty' (Clark and Qizilbash, 2002, p. 2). In other words, a dimension (threshold) counts as admissible if it plausible to view it as part of at least one possible way of specifying poverty.

In this framework a dimension is regarded as 'core' if it is part of *all* admissible specifications of poverty (in Figure 1 we assume D_2 and D_3 are core dimensions of poverty). To be classified as 'core poor' a person must be poor in terms of a core dimension. This means that s/he must fall *at or below* the lowest admissible critical minimal level in at least one core dimension of poverty (i.e. at or below M_{2L} and/or M_{3L} in Figure 1). A person counts as core poor irrespective of whether he or she is poor in terms of one core dimension (e.g. D_2 or D_3) or multiple core dimensions (e.g. D_2 and D_3). If a person falls at or below the lowest admissible critical minimal level in a non-core dimension (i.e. M_{1L} , M_{4L} or M_{5L}), then s/he is poor in that dimension (i.e. D_1 , D_4 or D_5). However, this does not imply that the person in question is definitely or unambiguously poor, as the relevant dimension is not part of all admissible specifications of poverty. If a person falls at or above the highest admissible critical minimal level in a particular dimension (e.g. M_{1H} or M_{2H}), then s/he is definitely not poor in that dimension. To count as *non-poor* overall, however, a person must fall at or above the highest admissible critical minimal level for all admissible dimensions of poverty (i.e. M_{1H} , M_{2H} , M_{3H} , M_{4H} , and M_{5H} in Figure 1).

Finally, if a person is neither definitely poor nor definitely not poor in a given dimension, then s/he is regarded as *vulnerable* in that dimension (Qizilbash, 2003, p. 52). In this context the notion of vulnerability is used to refer to those who are neither clearly poor nor clearly non-poor, i.e. the ambiguously (non) poor. This differs from the more common usage in the poverty literature where it refers to non-poor people who are exposed to risks (such as ill-health or crop failure) that might lead to poverty in the foreseeable future (see Ellis, 2006). In short, 'vulnerability relates to the possibility of being classified as poor, rather than any risk of becoming poor' (Qizilbash, 2003, p. 52). In terms of Figure 1 a person is vulnerable to poverty in a given dimension (e.g. D_1) if s/he falls between the highest and lowest admissible

¹ The existence of this type of vagueness is controversial (see Qizilbash, 2006). To date it has only been discussed by Qizilbash (2000, 2003, 2006).

Table 1. Key terms and concepts relating to Qizilbash's vagueness methodology

| Terms | Meaning | Example of operationalising the term |
|---|---|---|
| Dimension of poverty | Any admissible component of the poverty concept. A dimension is admissible if it is plausible to view it as part of at least one possible way of defining the meaning of poverty. | Any dimension of poverty (capability or need) identified by the South African poor in Clark and Qizilbash's survey on <i>The Essentials of Life</i> . In the South African context countless different dimensions can be distinguished. |
| Core dimension of poverty | A dimension that is part of all admissible specifications of poverty. | Any dimension of poverty identified by at least 95% of respondents (which allows a suitable margin for error). In the South African context 12 dimensions qualify as 'core': clean water, health, access to health care, housing, jobs, education, freedom, nutrition, safety, self worth and respect, survival and religion. |
| Critical minimal level (of a dimension of poverty) | Any admissible specification of a poverty threshold for a particular dimension. | Any poverty threshold identified by at least 5% of respondents (which again allows a suitable margin for error). In the case of education (years of schooling), Clark and Qizilbash found that cut offs in the range of 1 to 15 years are admissible in the South African context. |
| Lowest admissible critical minimal level (of a dimension of poverty) | The level at or below which a person is judged to be definitely poor in a given dimension. | In the case of education (years of schooling), Clark and Qizilbash found that the lowest admissible poverty threshold is 1–3 years of schooling. |
| Highest admissible critical minimal level (of a dimension of poverty) | The level at or above which a person is judged to be definitely non-poor in a given dimension. | In the case of education (years of schooling), Clark and Qizilbash found the highest admissible poverty threshold is 12–15 years of schooling. |
| Core poor | A person who is definitely poor (at or below the lowest admissible critical minimum) in terms of at least one core dimension. | Clark and Qizilbash estimate that at least 29.5% of South Africans are core poor. |
| Vulnerable (measured in terms of proximity to poverty in a given dimension) | Someone that is neither definitely poor nor non-poor in a given dimension, i.e. they are between the lowest and highest critical minimal levels in that dimension. | In the case of South Africa, Clark and Qizilbash found that in certain dimensions (notably housing and clean water) the main problem is extreme vulnerability rather than definite poverty. |
| Non-poor | Someone who is at or above the highest admissible critical minimal levels for all admissible dimensions of poverty. | Headcount not estimated by Clark and Qizilbash. |

Source: Qizilbash (2003) and Clark and Qizilbash (2002; 2008).

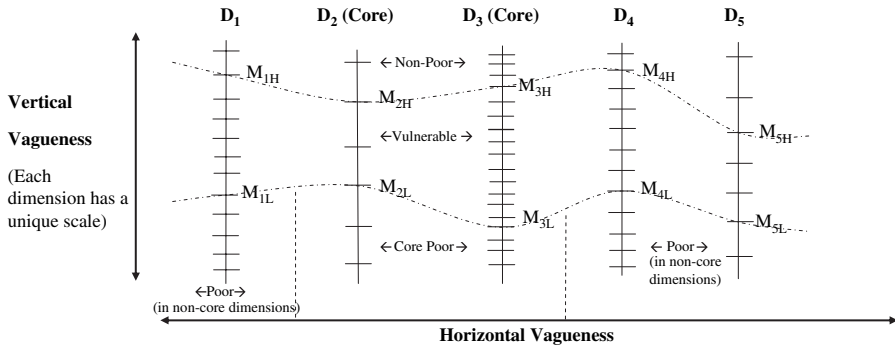


Fig. 1. Schematic representation of core poverty, vulnerability and being non-poor.

Notes:

1. In this diagram there are 5 admissible dimensions of poverty. Two dimensions, D_2 and D_3 are 'core' dimensions.
2. For each dimension there are a range of admissible critical minimum levels (poverty thresholds). For D_1 the highest admissible minimum level is M_{1H} (at or above which a person is not poor in this dimension) and the lowest admissible minimum level is M_{1L} (at or below which the person is definitely poor on this dimension).
3. Dimensions may be core (i.e. admissible on all plausible specifications of poverty) or non-core (admissible on at least one but not all specifications of poverty). The core poor are those who fall at or below M_{2L} and/or M_{3L} .

critical minimal levels in that dimension (e.g. any of the five points between M_{1H} and M_{1L}). The extent or magnitude of vulnerability in a given dimension (D_1) depends on proximity to the lowest admissible critical minimal level (M_{1L}) and the measure of vulnerability employed. On this account the fuzzy measures of poverty referred to in Section 2.1 can be reinterpreted as measures of vulnerability (see Qizilbash, 2003; Qizilbash and Clark, 2005).¹

To make this framework operational Clark and Qizilbash (2002, 2005, 2008) use the results of a survey on *The Essentials of Life*, which was administered in three different communities in South Africa in June and July 2001.² The aim of the questionnaire was to find out which capabilities and needs (dimensions) ordinary people think are basic, and where they draw the line between the poor and non-poor (see SALDRU, 2001). Using a relaxed 95% rule (which requires endorsement by at least 94.5% of people), Clark and Qizilbash found that 12 dimensions qualify as core in the South African context: clean water, health, access to health care, housing, jobs, education, freedom, nutrition, safety, self worth and respect, survival and religion. For consistency a relaxed 5% rule (which requires endorsement by at least 4.5% of people) was used to identify admissible critical minimums.³

¹ So far Qizilbash's applications of the vagueness approach have concentrated on the core poor and those who are vulnerable to poverty in given dimensions. There has been no attempt to develop a multidimensional measure of vulnerability.

² The survey was administered in association with the Southern Africa Labour and Development Research Unit (SALDRU), University of Cape Town. The areas surveyed were Kwanonqaba (a township in the Southern Cape), Murraysburg (a magisterial district in the Western Cape) and Khubus (a small isolated village in the Northern Cape). For further details see Clark and Qizilbash (2002, 2005, 2008).

³ The issue of how to use questionnaire responses to select admissible poverty thresholds is discussed by Qizilbash and Clark (2005).

For example, in the case of education (using the indicator ‘years of schooling’), the proportion of respondents endorsing given poverty thresholds is as follows: no years (2.0%), 1–3 years (6.2%), 4–6 years (12.5%), 7–9 years (22.4%), 9–12 years (38.9%), 12–15 years (15.7%), over 15 years (1.9%), and ‘no response’ (0.4%) (Clark and Qizilbash, 2008, table 3). In this example all categories other than ‘no years of schooling’ and ‘over 15 years of schooling’ are admissible. So the lowest admissible threshold is 1–3 years of education. Everyone *below* this level is poor in terms of all admissible cut offs and is therefore definitely poor on this indicator. On the other hand, the highest admissible cut off is ‘12–15 years of education’ and anyone *at or above* this level is definitely non-poor on this indicator. This example implies a considerable degree of vagueness concerning poverty thresholds, as the range of admissible cut offs is fairly wide (although this may not be true for all dimensions and indicators as Figure 1 implies). People who fall between the upper and lower thresholds can be treated as having some degree of membership of the set of the poor, which can be calculated using fuzzy poverty measures (Clark and Qizilbash, 2002; Qizilbash and Clark, 2005).¹

4.2 Extending Qizilbash’s framework

There is more than one way of extending Qizilbash’s framework to incorporate time in terms of the duration of poverty. This paper attempts to develop the conceptual foundations of one such approach. This involves: (i) introducing a new set of concepts and categories—from the Chronic Poverty Approach—to complement existing ones (see Table 2); and (ii) treating ‘chronic’ as an additional vague predicate. The discussion draws on the work of the Chronic Poverty Research Centre (CPRC, 2004, 2008; Hulme, 2006; Hulme *et al.*, 2001; Hulme and Shepherd, 2003A, 2003B), as well as from Qizilbash’s work on poverty and vagueness (see Section 4.1).

In the extended framework—as in the original framework—a person is defined as definitely poor in a given dimension if he or she falls at or below the lowest admissible poverty threshold in that dimension. Such a person, however, is not necessarily *chronically* poor in that dimension. For a person to classify as *chronically* poor in a given dimension, he or she must qualify as definitely poor in that dimension for a *given period of time*. For each dimension and corresponding thresholds, it is likely that there will be a range of admissible time periods that can plausibly be used to define the duration of chronic poverty.² In line with Qizilbash’s vagueness methodology, a person can be classified as definitely (unambiguously) *chronically* poor in a given dimension, if he or she falls at or below the lowest admissible poverty threshold in that dimension for at least the longest admissible period of time associated with that dimension and threshold. If the person in question does not remain definitely poor for the longest admissible period of time there will be meaningful specifications of chronic poverty (incorporating longer duration thresholds) on which s/he does not count as chronically poor.

This approach effectively involves extending rather than modifying Qizilbash’s original framework. Key concepts such as core poverty and vulnerability retain their original

¹ While proxy indicators were not available for some core dimensions of poverty and arriving at an overall headcount of the core poor involves methodological challenges, it has been estimated that at least 29.5% of South African households are core poor, (among other things) which is higher than competing estimates of the ‘most deprived’ or ‘ultra poor’ households (Clark and Qizilbash, 2008, p. 534). In some dimensions (housing and clean water) the main problem is extreme vulnerability rather than definite poverty. It is worth noting that the South Africans interviewed set very tough standards for someone to qualify as poor. It is the methodological framework combined with survey responses that leads to higher poverty estimates.

² Identifying admissible time periods for each dimension of poverty is ultimately an empirical question that requires a new round of fieldwork.

Table 2. *Integrating Qizilbash's vagueness methodology with the chronic poverty approach*

| | Non poor | Vulnerable ^a | Poor in a non-core dimension | Core poor |
|------------------------------|---|--|---|--|
| Never poor | Non poor and secure | N/A | N/A | N/A |
| Transitory poor ^b | <i>Transitory vulnerable type I</i> , i.e. people that are not definitely poor at the moment, but have either experienced poverty or vulnerability in the past and/or are likely to experience it in the near future. | <i>Transitory vulnerable type II</i> , i.e. people that are sometimes vulnerable to poverty in a given dimension that may or may not be core. ^c | Sometimes poor in non-core dimension(s) | <i>Transitory core poor</i> , i.e. people who sometimes experience poverty in at least one core dimension. |
| Chronically poor | N/A | <i>Chronically vulnerable</i> , i.e. persistently vulnerable to definite poverty in a given dimension, which may or may not be core. | Persistently poor in non-core dimension(s). | <i>Chronically core poor</i> , i.e. persistently poor in terms of at least one core dimension of poverty. ^d |

^aMeasures of extreme vulnerability to poverty are dimension specific.

^bThis category could be sub-divided into the occasionally poor, sometimes poor and usually poor.

^cThis category includes: (i) people currently classified as vulnerable and (ii) people who move in and out of poverty (i.e. cross the lowest admissible threshold) as well as people who move in and out of vulnerability (i.e. cross the highest admissible threshold).

^dAllows for the possibility that individuals might move out of poverty in one core dimension, but back into poverty in another core dimension.

meanings, but are supplemented with new concepts and categories from the chronic poverty approach. Notice, however, that treating the terms 'chronic' as a vague predicate represents a clear departure from the standard literature on chronic poverty. Instead of adopting a single clearly defined boundary determined somewhat arbitrarily (five years is sometimes proposed largely for convenience), 'chronic' becomes a fuzzy or vague concept that manifests itself in varying degrees.

Much of the theoretical innovation in the extended framework comes from juxtaposing the core poverty and chronic poverty approaches (see Table 2). This exercise reveals several new hybrid categories. For example, the extended framework can be used to identify the *chronically core poor*. In accordance with our methodology the chronically core poor are those who fall at or below the lowest admissible poverty threshold in a core dimension for *at least the longest admissible period of time* associated with that dimension and threshold. Such a person may be regarded as persistently or *chronically* core poor.¹ If the person in question does not remain at or below the lowest admissible core poverty threshold for the longest admissible period of time, there will be meaningful specifications of chronic poverty (incorporating longer time periods) on which the person's condition does not count as chronic. Such a person could be regarded as *transitory* core poor. In other words s/he experiences core poverty some of the time, but never for long enough to count as definitely (or unambiguously) chronically core poor.² Table 2 makes a similar set of distinctions relating to non-core dimensions.

It is also possible to distinguish between the *chronically* vulnerable and *transitory* vulnerable using this framework. The chronically vulnerable are those who are persistently close to definite poverty in a given dimension. In terms of our framework such a person must be situated *between* the lowest and highest admissible critical minimums on a given dimension for a sustained period of time (equivalent to at least the longest admissible time period associated with that dimension) to count as chronically vulnerable in that dimension.³ If the person in question reaches or crosses the lowest admissible critical minimal level before the longest admissible time period has elapsed, s/he will fall into poverty on that dimension.⁴ On the other hand, if this person reaches or passes the highest admissible critical minimal level before the longest admissible time period elapses, s/he will join the ranks of the non-poor. Any person reaching or crossing either of these thresholds on a particular dimension before the longest admissible time period has elapsed can be regarded as transitory vulnerable on that dimension. Another kind of transitory vulnerability occurs when a person who is currently non-poor (at or above the highest admissible threshold) on a given dimension has either experienced poverty in that dimension in the recent past or is likely to move into poverty in that dimension in the near future. Once again the relevant time horizon for making this judgment corresponds to the longest admissible duration threshold associated with the dimension in question.

¹ In terms of the chronic poverty approach developed by Hulme, Moore and Shepherd and Qizilbash's vagueness framework, such a person would be both chronically poor and core poor. This assumes, of course, that the threshold for chronic poverty is not automatically set at five years (as Hulme and Shepherd, 2003A, suggest), but is adjusted to match the longest admissible time period associated with the dimension in question.

² This category could be sub-divided into the occasionally poor, sometimes poor and usually poor, defined perhaps in relation to proximity to the shortest (longest) admissible duration thresholds.

³ For simplicity, the discussion here effectively assumes that the longest admissible period of time associated with each relevant critical minimal level for the dimension in question is the same. In practice, this might not be the case.

⁴ If the dimension in question were core this person would also qualify as either transitory core poor or chronically core poor (depending on how long s/he remains at or below the lowest admissible poverty threshold).

4.3 Methodological and policy implications

It is worth considering some of the methodological and policy implications of this framework. In terms of the original framework, for x to count as 'core poor', x must fall at or below the lowest admissible critical level in any core dimension (Clark and Qizilbash, 2002, p. 2; Qizilbash, 2003, p. 51). This is a defining feature of the framework. Any person doing sufficiently badly in terms of a core dimension—irrespective of his or her performance in other dimensions—is automatically classified as poor. This approach stands in stark contrast to most other multi-dimensional measures of poverty (such as the human poverty index), which typically concentrate on averaging a small number of indicators. Such approaches are problematic insofar as they conceal important forms of deprivation.¹

Notice that introducing chronic poverty as a vague predicate does not change the criteria for definite poverty. We can continue to say, with confidence and conviction, that someone who suffers from a core deprivation is definitely poor, irrespective of whether or not that deprivation persists over time. Thus, someone who lacks access to sufficient nutrients or has just been violently assaulted can be plausibly regarded as poor, even if he or she is normally able to find enough food or is not physically assaulted everyday.² Such conditions, while extremely serious, only become chronic after they have been sustained for a given period of time (equivalent to the longest admissible time period corresponding to the form and depth of the deprivation in question). In some cases (e.g. access to food or water) the relevant time horizon may be fairly short (hours or days at the most). In other cases (e.g. unemployment), the relevant time horizon may be much longer (weeks, months or even years).

These remarks imply our framework is broadly consistent with the human development paradigm, which views poverty as basic capability failure. In the capability approach and human development literature more generally, poverty has breadth and depth, although there are no explicit requirements in terms of duration. A person is characterised as poor if he or she is unable to achieve certain basic capabilities. To see why this is a desirable feature of our framework, it is worth considering an alternative approach.

A different way of incorporating time into the vagueness framework involves making duration an integral part of the poverty concept, instead of treating chronic as a separate vague predicate. This approach essentially involves introducing a third layer of vagueness into the original framework, i.e. *temporal vagueness* or imprecision concerning the length of time for which someone must fall at or below a threshold in a given dimension in order to qualify as poor in that dimension. The development of this framework implies a similar set of concepts, categories and definitions to those described in Table 2 (on this see Clark and Hulme, 2005). There is, however, one crucial methodological difference, which makes this way of extending the framework inconsistent with the human development approach. There is now no guarantee that a person who is core poor and suffers from serious deprivation(s) will count as definitely poor. Technically, any person who fails to satisfy the relevant time requirements will not be classified as unambiguously poor (irrespective of the breadth or depth of their poverty). Arguably, the crux of the problem here is that the

¹ This in turn does the human development approach a disservice as the quotation from Amartya Sen in Section 2.2 implies.

² In addition certain deprivations may have lasting consequences (e.g. stunting, physical impairment, lack of access to crucial health services causing death, mental trauma, loss of confidence, etc), even if they are experienced for extremely short periods of time.

concept of poverty is being asked to do too much work. Instead an approach that views the core poor as definitely poor—irrespective of whether their condition is chronic—seems to be preferable.

The extended framework has the advantage of combining and enriching the policy insights from the core poverty approach and the chronic poverty framework. For example, following the poverty and vagueness approach we can distinguish between: (i) core poverty prevention (policy measures designed to prevent the vulnerable from falling into definite poverty in specific dimensions); and (ii) core poverty eradication (policy measures designed to eliminate poverty in certain dimensions) (Clark and Qizilbash, 2002). Moreover, following the chronic poverty approach, we might analyse the characteristics of the ‘chronically poor’, ‘transitory poor’ and ‘never poor’ and consider the factors that allow people to move between these categories (see CPRC, 2004; Hulme, 2006; Hulme and Shepherd, 2003A, 2003B). This kind of approach provides important clues about the causes and consequences of poverty as well as insights into strategies for dealing with human deprivation. Finally, juxtaposing these frameworks promises to generate new policy insights. For example, we might ask: (i) why some people (groups) *are chronically core poor* while others are *transitory core poor* or *transitory vulnerable*; and (ii) whether some dimensions of core poverty merit priority because of the relatively short time period that they need to be experienced to cause serious harm or irreversible loss of capabilities.

Before closing, it is worth reflecting on some of the practical implications of adopting the proposed framework. First, it has been mooted that any attempt to complicate the measurement of poverty may depoliticise it. Instead of recognising that poverty is a normative and controversial concept that should be contested, such a framework may end up replacing political decisions with neutral technical ones. Such an argument does not apply to the logic or spirit of our framework, which is intended to embrace different specifications of poverty and develops a methodology for identifying them in accordance with the values and experiences of different people.¹ Second, it might be argued that a framework based on consensus may lead to the identification of different dimensions, thresholds and time horizons for measuring and analysing poverty in different contexts. While it is not unreasonable to suppose values and attitudes differ between cultures and evolve overtime, there is some evidence (e.g. Clark, 2002) to support the view that there is likely to be much agreement about the defining features of poverty (see also Narayan *et al*, 2000). In cases where different cultures and societies genuinely disagree about definition and measurement of poverty, we may have to grudgingly accept that international comparisons of poverty are not strictly possible (unless, of course, we wish to impose an external measure, which is objectionably paternalistic).

Finally, it is worth emphasising that any attempt to apply our framework in a specific context is likely to transform the map of poverty. As we have seen, preliminary estimates of core poverty in South Africa tend to be noticeably higher than existing composite measures of poverty (see note 1 on page 358). In addition, it has been shown that distinguishing between the poor and the extremely vulnerable in South Africa tends to enrich inter-provincial profiles of poverty considerably (see Qizilbash, 2002A). It stands to reason that any attempt to introduce time or duration into the analysis is likely to transform the map of poverty further.

¹ Notice, however, that the identification of the poor and vulnerable depends in part on the rules used to define the categories specified in Table 2.

5. Summary and conclusions

This paper has made the case that time, and in particular duration, has been neglected in the conceptualisation and measurement of poverty until relatively recently. It has sought to develop a unified framework in which the meta-dimensions of poverty (breadth, depth and duration) can be brought together by drawing on Qizilbash's poverty and vagueness approach and the emerging literature on chronic poverty. To date, the vagueness methodology has neglected time and has not been used to analyse the dynamics of poverty. In contrast, much of the chronic poverty literature focuses on a single dimension of poverty (typically income or consumption) and does not make a sharp distinction between poverty and vulnerability. Allowing for multi-dimensionality allows us to study different forms of poverty, consider how they relate to one another and say something concrete about inter-sectoral policies and priorities, e.g. in the spheres of health, housing, water, etc. (e.g. Qizilbash, 2002A). In addition the vagueness framework can be used to distinguish between poverty prevention policies (aimed at preventing the vulnerable from falling into core poverty) and poverty eradication policies (aimed at directly tackling core poverty itself) (see Clark and Qizilbash, 2002).

Incorporating time into a unified framework for understanding poverty along the lines suggested provides a promising approach for conceptualising, measuring and analysing poverty. Such an approach combines the strengths of these two frameworks and should be able to deal with multiple specifications of poverty, allow for multidimensionality and the sectoral analysis of poverty, make subtle distinctions between poverty and vulnerability and analyse the dynamics of poverty among different groups of people. On their own neither the chronic poverty framework nor the vagueness methodology can do all these tasks well. Arguably a more holistic approach, along the lines suggested here, could deepen the understanding of poverty and sharpen policy analysis more than most existing frameworks.

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