

Weakly relative poverty lines in developing countries: The case of South Africa

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Like most developing countries, poverty in South Africa is typically measured using absolute poverty lines. “Strongly” or purely relative poverty lines are understandably considered to be inappropriate for the measurement of poverty in developing countries, despite strong theoretical arguments for the importance of measuring relative poverty in some way. In light of this, the recent introduction of so-called “weakly relative” poverty lines by Ravallion and Chen (2011) and Chen and Ravallion (2013) may be a useful innovation for developing country poverty analysis. This paper considers the usefulness and appropriateness of this weakly relative poverty line methodology for poverty analysis in one particular developing country, which is South Africa. It examines how local empirical evidence relates to the theoretical justifications for relative poverty lines, compares the weakly relative lines to already-existing South African absolute poverty lines, and discusses how poverty measurement using the weakly relative lines may be interpreted. Though some theoretical concerns are noted, the paper argues that the practical appeal of the Chen and Ravallion (2013) methodology makes it a valuable technique for South African poverty analysis, and it should be used to complement already-existing measures.

1. Introduction

Measures of absolute poverty dominate poverty analysis in developing countries, including South Africa, a relatively wealthy developing country. Recently, however, Ravallion and Chen (2011) and Chen and Ravallion (2013) have developed methodologies for determining national “weakly relative” poverty lines for developing countries.¹ This paper applies these methodologies to the case of South Africa, and assesses their usefulness and coherence. We conclude that the methodology is useful for South African poverty analysis. Though some theoretical concerns are noted, the practical appeal of the poverty lines outweighs these theoretical issues.

Section 2 briefly introduces the concepts of absolute and relative poverty lines, and discusses the global and South African applications of these lines. Section 3 discusses Ravallion and Chen’s (2011) two main theoretical justifications for relative poverty lines, and examines whether these justifications are appropriate in the South African context by reviewing the relevant empirical literature. Section 4 outlines Ravallion and Chen’s (2011) criticisms of conventional “strongly relative” poverty lines, and presents their proposed “Weak Relativity Axiom”. The section then introduces the Ravallion and Chen (2011) and Chen and Ravallion (2013) methodologies for determining weakly relative poverty lines. Section 5 applies these methods to South Africa using the 2005 and 2010/11 Income and Expenditure Surveys, and interprets the results. Section 6 discusses the choice between the Ravallion and Chen (2011) and Chen and Ravallion (2013) specifications, and expresses a preference for the latter option. Section 7 concludes.

2. Relative poverty lines in practice

2.1 Introducing relative and absolute poverty lines

The fundamental difference between absolute and relative poverty lines is in their conceptualisation of what constitutes poverty. Absolute poverty lines are based on the cost of a basket of goods and services which remain fixed (Deaton, 1997). A person is understood to be poor if they cannot afford this basket. As such, while the nominal value of an absolute poverty line may vary across time and space, its real value remains constant. It is meant to always reflect the cost of the same basket of goods and services, irrespective of changes in a society’s standard of living (Madden, 2000). Relative lines, in contrast, are always some explicit function of a society’s income or expenditure distribution

¹ Chen and Ravallion (2013) present a small adjustment to the Ravallion and Chen (2011) methodology for constructing weakly relative poverty lines. There is of necessity significant overlap in their methodologies. When discussing issues common to both methodologies, this paper will refer to Ravallion and Chen (2011), as the original paper.

(Foster, 1998). One approach is to cut off the p poorest percent of the population, and use the level of income or expenditure at this point as the poverty line. Another approach is to set the poverty line at y percent of national mean or median income or expenditure (Woolard and Leibbrandt, 1999).² A person is classified as poor if their income or expenditure is below the poverty line. The conceptualisation of poverty is of being unacceptably poor relative to other people in society. While the key decision for absolute lines is what should be included in the basket of goods and services, the main decision for relative lines is how much poorer than the rest of society a person must be in order to be classified as poor.

2.2 Relative poverty lines in developed countries

Despite the first known absolute poverty lines having been developed for Britain, that country and the vast majority of other developed countries currently use relative poverty lines (Magasela, 2006).³ Absolute poverty lines are often linked to an understanding of poverty that is about subsistence physiological needs, and this is what justifies the use of a basket of goods and services which does not change with social norms (Rio Group, 2006). Concern about this kind of poverty has waned in developed countries, and has been replaced by concern regarding what has come to be understood as “relative deprivation”. The work of Peter Townsend in particular has been instrumental in this shift (Sen, 1983). At a time when the post-war British welfare state was widely understood to have almost eradicated absolute poverty, Abel-Smith and Townsend (1965, cited in Magasela, 2006) showed that relative poverty was widespread, and that the relatively poor experienced significant deprivation and hardship. Townsend’s position, that “[p]overty can be defined objectively and applied consistently only in terms of the concept of relative deprivation” (1979: 31), has since become dominant in the analysis of poverty in developed countries. For example, both the European Union and the Organisation for Economic Co-operation and Development (OECD) use median national income and a 50% and 60% threshold to set their poverty lines (Rio Group, 2006; OECD, 2014).⁴

² Foster (1998: 336) encapsulates both of these methods in his more generalised definition of relative poverty lines: “A *relative* poverty line begins with some notion of a *standard of living* $r(\mathbf{x})$ for the distribution \mathbf{x} , such as the mean, median, or some other quantile, and defines the cutoff as some percentage α of this standard. The result is a poverty threshold $Z_r = \alpha r(\mathbf{x})$...”

³ A significant exception is the United States of America, which officially uses an absolute measure. There has however been at least some discussion within the National Research Council arguing that the US poverty line should incorporate a relative component (Citro and Michael, 1995; Foster, 1998).

⁴ The European Union poverty lines form part of their Laeken indicators, which is a composite set of measures developed for the purposes of measuring poverty and social exclusion (Rio Group, 2006).

2.3 Relative poverty lines in South Africa

As mentioned in the introduction, the predominance of relative poverty lines in developed countries has not extended to developing countries, where there is still significant concern about absolute poverty. Many developing countries have developed their own national absolute poverty lines, and the World Bank's well-known \$1-a-day line (1990), now \$1.25-a-day (Ravallion, Chen and Sangraula, 2009), constitutes an international absolute poverty line for all developing countries. In South Africa, various absolute lines based on Ravallion's (1994) Cost of Basic Needs method predominate. Very few relative lines have been developed for South Africa, and, significantly, none have been used to measure relative poverty for more than one time period. As Foster (1998: 337) notes, "the key distinction between absolute and relative thresholds is not seen in the specific values obtained at a given date, but in how the values change as the distribution changes". As far as we are aware, there has not been any analysis of poverty trends in South Africa which incorporates a poverty line sensitive to distributional changes.

The post-Apartheid *Key indicators of poverty in South Africa* report (Ministry in the Office of the President: Reconstruction and Development Programme, 1995) calculated poverty lines set at the 40th and 20th percentile of the household equivalent expenditure distribution, but these lines were subsequently kept constant in real terms and used as absolute poverty lines. Bhorat, Naidoo and Van der Westhuizen (2006) and Bhorat, Van der Westhuizen and Goga (2007) do the same, but with relative poverty lines set in terms of individual welfare indices. Jansen et al (2015) set relative poverty lines at the 40th percentile of the per capita income distribution of each South African province, but do not apply these lines beyond one time period. Oosthuizen (2008) calculates a variety of relative poverty lines but also does not extend his analysis beyond one time-period. Woolard and Leibbrandt (1999) discuss two relative line options, but do not use either in their poverty analysis, choosing to continue with absolute poverty thresholds.

3. Justifications for relative poverty lines

3.1 Two theoretical justifications

Ravallion and Chen (2011) identify two main theoretical justifications for relative poverty lines. They term these the "welfarist" and "nonwelfarist" arguments. The welfarist argument is based on the conventional Economics framework of conceptualising poverty as being some low level of utility (welfare). In this context, a poverty line is a money-metric measure of the "poverty level" of utility,

which is absolute and fixed in the utility space (Ravallion, 2012). Utility itself is however assumed to be a function of own income and relative income, thus rendering poverty relative in the income space.⁵ Accepting Ravallion and Chen’s (2011) typology, and assuming that the social standard of living can be captured by national mean income M , this can be easily represented formally. Utility is $W(Y, Y / M)$, where Y is own income and Y / M is relative income, and utility is assumed to be smoothly nondecreasing in Y and Y / M (Ravallion and Chen, 2011). The poverty level of utility \bar{W} is therefore defined in terms of the income poverty line Z such that

$$\bar{W} = W(Z, Z / M). \quad (1)$$

If the utility derived from relative income is non-zero, Z must change as M changes in order for \bar{W} to remain fixed. In light of this, Ravallion and Chen (2011) show that the elasticity of Z with respect to M is given by

$$\eta = \frac{W_{Y/M}}{W_{Y/M} + M \cdot W_Y} \quad (0 \leq \eta \leq 1), \quad (2)$$

where subscripts denote partial derivatives. While this elasticity will be discussed in greater depth in Section 4.1, it is sufficient to note here that as long as the welfare derived from relative income is non-zero ($W_{Y/M} > 0$), Z will vary positively with M .⁶

In contrast, what Ravallion and Chen (2011) call the “nonwelfarist” argument, which we call the “capabilities” argument, relies on an entirely different theoretical basis. This follows Amartya Sen’s pioneering and influential approach, whereby wellbeing is measured not in terms of utility or commodities but in terms of a person’s capabilities (Sen, 1980). Capabilities reflect a person’s freedom to choose a way of living which they can achieve and have reason to value (Atkinson, 1999). Poverty is understood to be deficiency in the basic capabilities required to be non-poor (Sen, 1983). A basic physiological capability required to be non-poor could be the capability not to be hungry, while an equivalent basic social capability could be the capability not to be ashamed. Indeed it is this latter capability that Sen (1983) uses to demonstrate that while poverty must be understood to be absolute in the space of capabilities, this then necessitates that it be relative in the space of commodities. The capability to live a life free of shame, assumed to be a basic capability required to be non-poor, will have a varying real cost depending on the prevailing standard of living of each particular society.

⁵ Income or consumption could be used in this context, and indeed Ravallion and Chen (2011) prefer consumption to income data where it is available. For the purposes of our theoretical explanation, however, we will follow Ravallion and Chen (2011) in referring to income as the welfare measure. For discussion of the choice between using income or consumption measures generally, see Deaton (1997).

⁶ Note that it is already assumed that utility is nondecreasing in Y and Y / M .

Ravallion and Chen (2011) make the same point, referencing Sen (1983), but refer to the varying “cost of social inclusion” of different societies.⁷ Both Sen (1983) and Ravallion and Chen (2011) quote from Adam Smith’s (1776) *Wealth of Nations* to substantiate their arguments for socially determined necessities, though they refer to separate parts of the same paragraph. Ravallion and Chen (2011) quote the following:

A linen shirt, for example, is, strictly speaking, not a necessary of life. The Greeks and Romans lived, I suppose, very comfortably though they had no linen. But in the present times, through the greater part of Europe, a creditable day-labourer would be ashamed to appear in public without a linen shirt, the want of which would be supposed to denote that disgraceful degree of poverty which, it is presumed, nobody can well fall into without extreme bad conduct. (Smith, 1776: 1103)

Social inclusion is understood to be a basic capability required to be non-poor. In this sense, achieving social inclusion is an absolute requirement for non-poverty. However the commodities required for social inclusion, which in Smith’s time and place included a linen shirt, will change across societies. If the basic assumption is made that the cost of commodities required for social inclusion will be positively related to national mean income, this necessitates a relative poverty line as it is conventionally understood.

3.2 Ravallion and Chen’s empirical evidence

Ravallion and Chen (2011) cite extensive empirical evidence related to the welfarist and capabilities arguments.⁸ In defence of the welfarist justification they include numerous studies which show that relative position is often correlated with self-reported happiness or perceived welfare, and refer to cases where the theory of relative deprivation has been used to explain observed behaviour. A potential weakness of this evidence, which Ravallion and Chen (2011) identify, is that most of the evidence they cite concerns developed countries. They note that the little evidence available from developing countries suggests that relative position is valued, but that the positive weight poor people attach to their relative position rises with their absolute living levels. At very low levels of income it may be the case that the benefits of having relatively richer neighbours outweigh negative relative deprivation effects. In defence of the capabilities approach, which they interpret as being primarily about the cost of social inclusion, they cite numerous anthropological studies which show

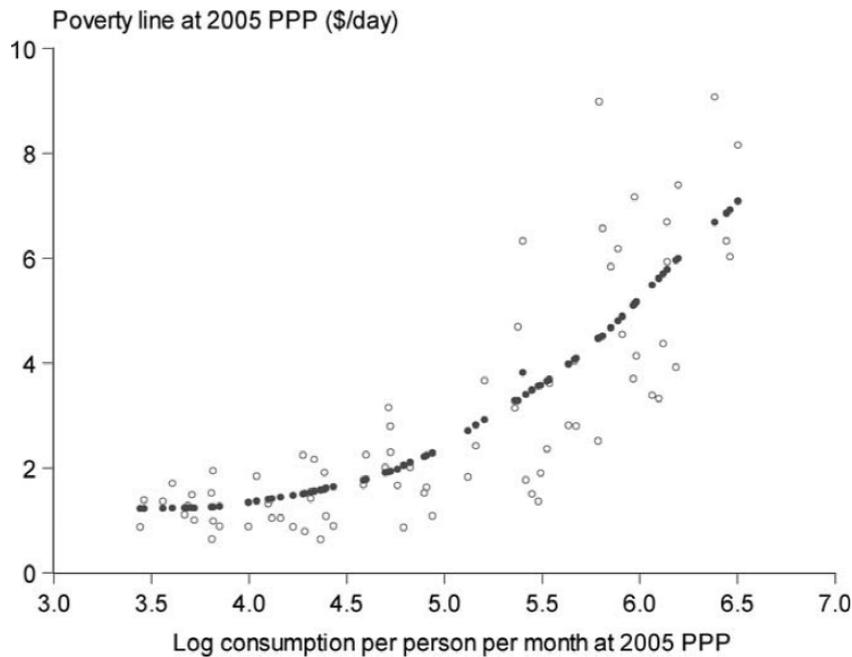
⁷ Interestingly, the language of “social inclusion” is perhaps more in line with Townsend’s (1979) conception of relative deprivation than Sen’s more specific capabilities approach, though fundamentally the same point is made. Townsend (1979: 915) defines poverty as occurring when “[p]eople are deprived of the conditions of life which ordinarily define membership of society”.

⁸ Note that much of this evidence could be used to support both the welfarist and capabilities justifications.

the important social roles of various forms of consumption in poor societies. In addition, they provide evidence which suggests that this kind of consumption can be necessary to avoid social ostracisation.

Ravallion and Chen's (2011) strongest evidence for a relative conceptualisation of poverty, however, comes from past attempts to set a globally relevant absolute poverty line for developing countries. The old \$1-a-day (World Bank, 1990) and current \$1.25-a-day (Ravallion, Chen and Sangraula, 2009) absolute poverty lines were calculated by examining the distribution of already-existing poverty lines for developing countries. While separate datasets were constructed in 1990 and 2009, both clearly show that national absolute poverty lines increase as national mean income increases. This relationship is reproduced in Figure 1 below, from the 2009 dataset. Assuming that these poverty lines have to pass a test of local relevancy, and therefore satisfy local conceptions of what constitutes poverty, Figure 1 presents strong evidence for the idea that to be "non-poor" requires higher income in a richer society. The shape of the graph is also notable. While the slope is very flat at low levels of mean income, this increases with national mean income. This suggests that the elasticity of the poverty line to mean income increases with mean income. This is consistent with people attaching a greater weight to relative deprivation (as opposed to absolute deprivation) at higher levels of national mean income, or it can be interpreted as the increasing importance of meeting social inclusion needs in richer countries. In either case, it is strong evidence for a relative conceptualisation of poverty even amongst developing countries, so long as these countries' mean income is above some low level. The importance of Figure 1 and the relationship it suggests is returned to in Section 4.

Figure 1: Relating absolute poverty lines to national mean expenditure



Source: Ravallion and Chen (2011). Fitted values using a lowess smoother with bandwidth = 0.8. Consumption refers to private consumption expenditure from the national accounts

3.3 Empirical evidence from South Africa

At issue for this paper specifically, however, is whether relative lines are justified in South Africa. Questions of relative position and socially necessary consumption deserve further research in South Africa, but there is some existing evidence which seems to support the use of a relative line.

3.3.1 Evidence for the welfarist approach

The key question when determining the applicability of the welfarist approach is whether South Africans, and particularly poor South Africans, value relative income. The empirical evidence in this regard mainly comes from attempts at identifying the determinants of subjective wellbeing. The evidence is complicated, but overall supports the notion of relative deprivation. The majority of the earlier South African work (Powdthavee, 2007; Kingdon and Knight, 2007; Bookwalter and Dalenberg, 2010) uses data from the 1993 Project for Statistics on Living Standards and

Development (PSLSD) survey, which includes a question on household subjective satisfaction.⁹ Powdthavee (2007), defining relative income as household income divided by the sampling cluster average income, initially finds no significant relationship between subjective wellbeing and relative position within the cluster. He finds the expected positive relationship with an amended specification, but the justification for this amended specification is unclear. As such, we proceed with Posel and Casale's (2011: 200) interpretation of Powdthavee's result, which is that he "finds no effect of household monthly income measured as a proportion of the cluster average (though this result is not robust across specifications)". Bookwalter and Dalenberg (2010) measure relative position by comparing household expenditure per person to median household expenditure per person for the sampling cluster. They find that household subjective wellbeing is positively related to increases in median cluster expenditure, suggesting that the benefit of living among wealthier people outweighs the negatives associated with being relatively poor.

Kingdon and Knight (2007) find the same result as Bookwalter and Dalenberg (2010) when comparing household income and average cluster income, but then extend their analysis to a definition of relative income which compares household income with average district income.¹⁰ They find that any positive effect of comparator income disappears when the reference group is the district rather than cluster. Though their point estimates are not statistically significant, they consistently find that average district income has a negative effect on subjective wellbeing, consistent with the relative deprivation thesis. In addition, they find that the positive effect of cluster income on subjective wellbeing is especially strong for small clusters, and weak or non-existent for large clusters.¹¹ These findings mitigate the challenge that their results would otherwise suggest for the relative deprivation thesis, which in Ravallion and Chen's (2011) case is explicitly about national relative position. Another important Kingdon and Knight finding concerns race, as they hypothesise that South Africans will more readily compare themselves to others of the same racial group. They find that race-specific comparator income, at the district level, has a large and significant negative effect on subjective wellbeing. They also find that non-poor South Africans value relative income position more than poor South Africans. Kingdon and Knight's (2007) findings are

⁹ Hinks and Gruen (2007) use data from three Durban of Quality of Life Studies, but the necessary crudeness of their relative income variable, which they acknowledge, leads us omit their study from our review. In the interests of completeness, we should note that their conclusion is that relative income is positively related to wellbeing, which supports our main thesis. However we are wary of too much weight being attached to this result, given potentially confounding specification issues.

¹⁰ Districts are a more expansive category than cluster. At the time of the survey, the average population of each cluster was 2 900 people while the average district population was 125 400 people (Kingdon and Knight, 2007).

¹¹ Small clusters are defined as those with no more than 200 households, while large clusters are those with more than 200 households. The average cluster has contains 580 households (Kingdon and Knight, 2007).

supportive of the relative deprivation hypothesis, though they complicates the otherwise aggregated picture.

Posel and Casale (2011) add considerably to the existing literature, using the 2008 National Income Dynamics Study (NIDS), by examining the effect of perceived relative position on subjective wellbeing. They firstly show that people's perceptions of where they rank in the national income distribution are highly inaccurate, with very few comparatively rich people correctly identifying themselves as such. They then hypothesise that relative deprivation effects will be stronger in relation to perceived position than objectively determined position. They find that while objectively determined relative position has a positive, statistically significant effect on subjective wellbeing, the effect of perceived position is much greater. This simultaneously supports and complicates the relative deprivation thesis. Posel and Casale (2011) also add to the literature by showing that studies which use the 1993 PSLSD survey will incorporate some measurement error. While household subjective wellbeing in the PSLSD was based on one household member's interview, Posel and Casale show that reported subjective wellbeing varies significantly amongst household members in NIDS, where subjective wellbeing is recorded for each individual. This finding must be considered when assessing the earlier PSLSD-based papers.

Apart from the discussions of relative position above, it is important to note that all of the papers included in our review (Powdthavee, 2007; Kingdon and Knight, 2007; Bookwalter and Dalenberg, 2010; Posel and Casele, 2011) also find that absolute income or expenditure is positively related to subjective wellbeing. The overall picture is thus mixed and complicated, but on balance does seem to provide evidence of relative deprivation consistent with Ravallion and Chen (2011), in the midst of other processes.

3.3.2 Evidence for the capabilities approach

The contestable assumption of the capabilities method is that some necessary expenditures are required for social inclusion, and the determination of social necessity will vary depending on the prevailing standard of living. Useful South African evidence in this regard can be found in the Centre for the Analysis of South African Social Policy's (CASASP) work on determining what they call "socially perceived necessities" (Wright, 2008). Their methodology will not be outlined in depth here, but essentially it involves asking different South African focus groups to determine which possessions, services and activities they deem necessary for an acceptable standard of living. These perceptions are then assessed for national representativity using the South African Social Attitudes

Survey (SASAS). Using this approach, CASASP determine a list of 36 “essential” items. Importantly, they find significant overlap in the selection of these items across different demographic characteristics such as race and class (Wright, 2008). Amongst the items deemed essential, there are a variety of items which cannot be seen to be physiological necessities. This supports the Ravallion and Chen (2011) argument for the existence of social inclusion needs. To highlight some examples, the list includes “ability to pay or contribute to funerals/funeral insurance/burial society”, a radio, a television, a cell phone, “a bath or shower in the house”, a “special meal at Christmas or equivalent festival”, “some new (not second-hand or handed-down) clothes”; a sofa/lounge suite, and a garden (Wright, 2008: 3).

When looking at this list of items, which is clearly socially determined, the link between social inclusion cost and prevailing standard of living seems entirely reasonable. The goods required to be non-poor in the South African context cannot be considered universal needs. This is somewhat supported by further evidence from Wright (2011), who disaggregates the perceived necessity of the 36 goods by SASAS interviewee characteristics such as race and poverty status. Though variation between race groups is minimal, whites tend to more easily categorise non-physiological goods as essential items than the other racial groups, and in particular deem some relatively expensive items, such as a car, as “essential”. Wright (2011: 11) attributes this to the “expectation of a higher standard of living [amongst whites] – not just for themselves but for the population at large”. While not conclusive, this evidence supports the view that wealthier groups see greater expenditure as being required to meet social inclusion needs. When disaggregating by the poverty status of the interviewee a similar picture occurs, though this result is perhaps open to additional alternative interpretations. Wright (2011) disaggregates by four different measures of poverty status, and finds that the non-poor tend to identify more items as necessary than the poor. Again, it should be emphasised that there is significant agreement across poverty status, with these divergences in classification occurring only for a small number of items.¹² However the pattern of wealthier groups having a more expansive idea of the goods required to be non-poor is sustained. Wright’s (2011) work suggests firstly that certain non-physiological goods are seen as necessities by the vast majority of South Africans, and secondly that the collective cost of goods deemed socially necessary will vary positively with the standard of living of the group that determines social necessity. This is consistent with the Ravallion and Chen (2011) “cost of social inclusion” justification for relative poverty lines.

¹² The two essential items most vulnerable to change in classification are the possession of a garden and having a bath or shower in the house.

To conclude this section, it seems that there is sufficient evidence to justify the use of a relative poverty line in South Africa according to the theory outlined above. This does not mean that relatively determined thresholds should replace other kinds of poverty lines, and indeed the importance of absolute income remains clear for poor South Africans. The above section has also emphasised the worth of so-called “subjective” poverty measures. It would seem that it is useful to use a variety of different methods for the purposes of understanding poverty in South Africa, but that this certainly includes relative lines.

4. Weakly relative poverty line proposals

4.1 Criticisms of strongly relative lines

However, while supportive of the theoretical arguments raised above, Ravallion and Chen (2011) argue that these theoretical arguments do not justify the use of what they call “strongly relative” poverty lines in the developing country context. Strongly relative lines are those poverty lines which are set at a constant proportion of mean or median national income. These kinds of poverty lines, which are the conventional type for developed countries, are necessarily unit elastic with respect to mean or median income. It is chiefly this characteristic which is the basis for Ravallion and Chen’s (2011) critique, and they argue against strongly relative poverty lines on three grounds.

Firstly, and in pragmatic terms most importantly, strongly relative lines do not allow for distribution-neutral growth to reduce poverty. Ravallion and Chen (2011) are highly critical of this property in the developing country context, arguing that it is very difficult to accept the idea that inequality-neutral growth in a middle income country such as China does not reduce poverty. This is a common criticism of strongly relative poverty lines, as pointed out by Deaton (1997), who also expresses unease with regard to this characteristic. However this criticism does not come from a theoretical position, and Ravallion and Chen’s (2011) argument therefore emphasises their second and third criticisms.

The second criticism draws on equation 2 described in Section 3.1, which relates the elasticity of the poverty line Z to national mean income M , within the welfarist conception. According to this equation, the elasticity of Z to M will only be equal to 1 when the utility derived from absolute income Y is equal to 0 (Ravallion and Chen, 2011). More plainly, a strongly relative poverty line will only be justified when people do not value absolute income at all, and their utility W is purely dependent on relative income Y/M . Ravallion and Chen (2011) argue that this condition is highly improbable, and not supported by any of their empirical evidence. As Section 3.3.1 shows, the

South African evidence supports Ravallion and Chen's (2011) position, as all of the reviewed studies showed that South Africans do tend to value absolute income positively, even if only to a small extent.

The third criticism is found within the capabilities conceptualisation. Ravallion and Chen (2011) note that a consequence of a strongly relative poverty line is that as mean income tends to zero, so does the poverty line. This implies that for very poor countries the cost of social inclusion is negligible, and that for a country with an average income of zero, the cost of social inclusion would also be zero. Ravallion and Chen (2011) argue that this is theoretically awkward, as there must be some lower bound to social inclusion needs. While explicit explanations of this view are not included in their later paper (Chen and Ravallion, 2013), Ravallion and Chen (2011: 1260) recall Adam Smith's example of the linen shirt, and argue that "in eighteenth-century Europe, a socially adequate shirt would not presumably have cost any less to the poorest person than the richest". In our view, this seems to represent a misunderstanding of the capabilities and cost of social inclusion argument. The argument is not premised on the idea that the cost of social inclusion varies amongst members of a particular society based on the individual's wealth. Rather, the argument is based on a society's prevailing standard of living as a whole. To return to the example of Adam Smith, if a linen shirt was indeed necessary for social inclusion in Europe at the time, then the cost of a linen shirt would form part of every eighteenth-century European's social inclusion needs regardless of their individual wealth, as Ravallion and Chen (2011) assert. However in a poorer society, such as, for example, seventeenth-century Europe, it may be the case that linen shirts were not an expected clothing item. This would then reduce the cost of social inclusion for that society, because the prevailing standard of living is lower, and expectations of individual material wealth are lower. For a society with an average income of zero, it is plausible that the cost of social inclusion would be zero, at least in money terms. One's social inclusion cannot be contingent on specific expenditures in such a society, as nobody else in that society can afford those expenditures either.

4.2 The Weak Relativity Axiom

While we do not find Ravallion and Chen's (2011) third criticism persuasive, this does not invalidate their criticisms of strongly relative lines generally. The first and second criticisms are to us credible, and there is nothing within the capabilities argument for relative poverty lines which suggests that the cost of social inclusion is necessarily directly proportional to mean income. Ravallion and Chen (2011) propose that acceptable poverty lines in developing countries should satisfy their Weak Relativity Axiom (WRA). The WRA is stated as follows: "if all incomes increase (decrease) by the

same proportion, then an aggregate poverty measure must fall (rise)” (Ravallion and Chen, 2011: 1252). By aggregate poverty measure, Ravallion and Chen (2011) mean poverty measurement outcomes such as the headcount ratio or poverty-gap index. As they explain, the WRA will be satisfied for any standard poverty measure so long as the elasticity of the poverty line to mean income is less than one. In the welfarist conceptualisation this essentially imposes a limit on the weight that can be attached to relative deprivation in the poverty line determination. In terms of equation 2, it implies that while people may derive utility from relative income Y/M , they also derive at least some utility from absolute income Y (Ravallion, 2012). In the capabilities conceptualisation it either limits the importance of social inclusion needs, or assumes that the cost of social inclusion is less than unit elastic with respect to national mean income.

4.3 Ravallion and Chen’s “Weakly relative poverty line”

In light of the theoretical criticism above, Ravallion and Chen (2011) propose a new method for determining relative poverty lines in developing countries. Incorporating both of their theoretical critiques, this results in a poverty line which is less than unit elastic with respect to mean income and incorporates a lower bound to social inclusion needs.

4.3.1 Atkinson and Bourguignon’s method

The basis of Ravallion and Chen’s (2011) method is a prior poverty line specification proposed by Atkinson and Bourguignon (2001). The Atkinson and Bourguignon (2001) poverty line makes provision for two capabilities: physical survival and social inclusion. Using Ravallion and Chen’s (2011) notation, the Atkinson and Bourguignon (2001) poverty line Z_i^{AB} for country i is of the form

$$Z_i^{AB} = \max(Z^*, kM_i) \quad (0 < k < 1), \quad (3)$$

where Z^* is the minimum expenditure required for physical survival needs, k is some constant, and M_i is the mean national income of country i . The absolute component of the line, Z^* , represents the cost of physical survival. The max function ensures that the poverty line never goes below the level of expenditure required for this physical survival capability. The relative component, kM_i , approximates the cost of social inclusion of country i . According to the theory of this line, then, a person with income above Z_i^{AB} in country i will have sufficient income to satisfy her context-specific physical survival and social inclusion capabilities.

A key question is how to determine the values of Z^* and k . For this purpose Atkinson and Bourguignon (2001) use the 1990 database of national absolute poverty lines referred to in Section 3.2. Drawing on the Ravallion, Datt and Van de Walle's (1991) work which anchors the \$1-a-day line to the poverty lines of the poorest countries, Atkinson and Bourguignon (2001) suggest that \$1-a-day is a reasonable lower bound for the minimum cost of physical survival Z^* .¹³ Drawing on the same dataset, they then determine a value for k which approximates the positive relationship between national poverty lines and mean income.¹⁴ The value of k is set at 0.37.

While acknowledging their method as an improvement upon strongly relative lines, Ravallion and Chen (2011) criticise the Atkinson and Bourguignon (2001) approach on the grounds that it violates the WRA. For countries with $M_i > Z^* / k$, the poverty line is unit elastic with respect to country mean income (Ravallion and Chen, 2011).¹⁵ They argue that this issue arises from the allegedly implausible assumption that the cost of social inclusion is directly proportional to the mean and vanishes in the limit as mean income tends to zero.

4.3.2 The Ravallion and Chen specification in the abstract

Ravallion and Chen (2011) thus amend the Atkinson and Bourguignon (2001) method such that poverty line Z_i for country i is given by

$$Z_i = \max(Z^*, \alpha + kM_i). \quad (4)$$

This introduces a new parameter, $\alpha \geq 0$, which is Ravallion and Chen's (2011) hypothesised lower bound to the cost of social inclusion. The new parameter ensures that the cost of social inclusion does not tend to zero, and has the additional property of ensuring that the elasticity of Z_i with respect to M_i is strictly less than unity for $\alpha > 0$ (Ravallion and Chen, 2011). Z_i has the additional characteristic that its elasticity with respect to M_i will increase in M_i . More plainly, the poverty line becomes increasingly sensitive to relative deprivation as mean national income increases. Ravallion and Chen (2011) show that this can be understood in welfarist terms when the underlying utility function W takes the form:

$$W(\cdot) = Y \quad \text{if } M \leq M^* \equiv \frac{Z^* - \alpha}{k} \quad (5a)$$

¹³ This is \$1-a-day in 1985 terms, adjusted for purchasing power parity (PPP) (Atkinson and Bourguignon, 2001).

¹⁴ Mean income is equal to GDP per capita (Atkinson and Bourguignon, 2001).

¹⁵ From equation 3.

$$= Y \left(1 - \frac{k(M-M^*)}{Y} \right) \quad \text{if } M > M^*. \quad (5b)$$

This suggests that concerns about relative income are only relevant for people in countries with national mean income above some threshold M^* .¹⁶ Below the threshold, utility is purely a function of own income Y . Beyond that threshold, relative deprivation has an increasingly negative effect on utility as country mean income M increases.

This is broadly consistent with the evidence in Sections 3.2 and 3.3, which shows that the empirical evidence is supportive of a relative line with less than unitary elasticity to mean income. Ravallion and Chen's (2011) review of the international literature and our review of the South African results show that people in developing countries do value absolute income positively, therefore disqualifying a unit elastic relative line. Figure 1 provides further evidence that prevailing perceptions of what constitutes poverty do not increase proportionately with mean income. It instead supports a poverty line with an increasing elasticity in mean income. While very limited, the evidence available for South Africa also provides some support for this contention.¹⁷

It must be noted at this stage that while the Ravallion and Chen (2011) poverty lines may be practically appealing, we view the theoretical justification as somewhat problematic. As explained above, we are not persuaded by the contention that there must be some lower bound to the cost of social inclusion, and this lower bound plays an important role in their poverty line equation. Despite this, we view the potential theoretical inconsistency as outweighed by the practical benefits of their specification.

4.3.3 Determining parameters

The Ravallion and Chen (2011) weakly relative poverty line (equation 4 above) requires that values be determined for the parameters Z^* , a and k . For this purpose, both Ravallion and Chen (2011) and Chen and Ravallion (2013) use the most recent database (Ravallion, Chen and Sangraula, 2009) of developing country national absolute poverty lines. Following Atkinson and Bourguignon's (2001) approach, they fit their poverty lines to the existing relationship between these national absolute lines and national mean income. Their parameters differ slightly, however, as Ravallion and Chen

¹⁶ In this case $M^* \equiv \frac{Z^* - \alpha}{k}$, from equation 4.

¹⁷ South African evidence on this issue is limited and our point here refers only to Kingdon and Knight's (2007) finding that the non-poor value relative position more than the poor. As far as we are aware, there is no South African evidence which suggests that the poverty line elasticity should *not* be increasing in mean income. With the dearth of South African evidence on this question, our main evidence comes from the international evidence, and particularly Figure 1.

(2011) use a different measure of national mean income than Chen and Ravallion (2013). This affects the relationship between national mean income and the absolute poverty lines, thus changing their parameter specifications. Ravallion and Chen (2011) relate the poverty lines to per capita private consumption expenditure from each country's *national accounts*, while Chen and Ravallion (2013) relate the poverty lines to mean per capita consumption calculated from country-specific *survey data*.¹⁸

Both papers set Z^* at \$1.25-a-day, which is the current global absolute poverty line calculated by Ravallion, Chen and Sangraula (2009).¹⁹ This line is calculated by examining the national absolute poverty lines of the world's poorest countries, which have a very low elasticity to mean income (Ravallion, Chen and Sangraula, 2009). In line with Atkinson and Bourguignon (2001), Ravallion and Chen (2011) and Chen and Ravallion (2013) accept the applicability of this line as an approximation of the cost of physical survival.

The values of a and k are then determined by fitting the weakly relative poverty lines to the Ravallion, Chen and Sangraula (2009) dataset. This paper will not go into detail as to the techniques used to fit their poverty line parameters to the data, except to note that the Ravallion and Chen (2011) parameters fit the data exceptionally well. The Chen and Ravallion (2013) parameters also fit well, though not as closely as the earlier paper. Ravallion and Chen (2011) determine that $a = \$0.60$ and $k = 1/3$, while Chen and Ravallion (2013) determine $a = \$1.25/2$ and $k = 1/2$.²⁰ The Ravallion and Chen (2011) line Z_i^{RC} is therefore given by

$$Z_i^{RC} = \max\left(\$1.25, \$0.60 + \frac{M_i}{3}\right) \quad (6)$$

while the Chen and Ravallion line Z_i^{CR} is given by

$$Z_i^{CR} = \max\left(\$1.25, \frac{\$1.25}{2} + \frac{M_i}{2}\right). \quad (7)$$

¹⁸ The national accounts item used by Ravallion and Chen (2011) is more accurately called "household final consumption expenditure per capita". "Per capita private consumption expenditure" is the older and seemingly more well-known term. The survey data comes from Ravallion and Chen's (2013) own database of 850 surveys for 125 countries. They explain that where it is available they prefer to use consumption rather than income data, as consumption data is generally assumed to be a more reliable estimate of welfare for developing countries. When discussing the variable they nonetheless continue to refer to mean national income, which we follow.

¹⁹ This is in 2005 US Dollars, adjusted for PPP. All of the cross-country conversions made by Ravallion and Chen (2011) and Chen and Ravallion (2013) are done according to PPP rates for individual consumption, calculated in the 2005 round of the International Comparison Program (ICP) (World Bank, 2008).

²⁰ Expressed in 2005 PPP US Dollars. As Chen and Ravallion (2013) note, the difference in k between the methods likely reflects the fact that national account consumption includes expenditures normally excluded from survey data consumption estimates. National account consumption is therefore typically greater than comparable survey estimates.

5. Application to South Africa

5.1 Calculating weakly relative poverty lines for South Africa

The application of these lines to South Africa is relatively straightforward. It requires conversion of the US Dollar values into South African Rands (R), South African national accounts information, and the calculation of mean per capita consumption from a selection of nationally representative South African surveys. This paper uses data from the 2005 and 2010/11 Income and Expenditure Surveys (IES), published by Statistics South Africa. Unless indicated otherwise, all Rand values are expressed in 2011 terms.

Using the PPP for individual consumption from the 2005 round of the ICP (World Bank, 2008), we find that \$1 is equivalent to R4.57 in 2005 terms.²¹ This allows for straightforward conversion of the Dollar amounts in equations 6 and 7. The Rand values are inflated to nominal 2011 prices using headline Consumer Price Index (CPI) inflation as reported by Statistics South Africa, and converted into monthly data. For the Ravallion and Chen (2011) method, total private consumption expenditure estimates for 2005 and 2011 from the South African Reserve Bank (SARB) are converted into a per capita monthly measure using the SARB's mid-year population estimates, and adjusted into nominal 2011 Rands. For the Chen and Ravallion (2013) method, our estimates of mean consumption use the already-derived monthly household expenditure variables from the 2005 and 2011 IES, which are converted into per capita values. For both the Ravallion and Chen (2011) and the Chen and Ravallion (2013) methods this same variable is used as our welfare indicator for the purposes of determining headcount ratios. The use of this variable, rather than constructing our own consumption aggregate, underlines that the process undertaken here is not primarily an analysis of poverty trends in South Africa from 2005 to 2011. Rather, we use this data and time-period to provide an example of how the weakly relative poverty lines may be used and interpreted in the South African context.²²

²¹ As indicated in Section 4.3.3, this is the same PPP conversion used by Ravallion and Chen (2011) and Chen and Ravallion (2013).

²² This also applies to our direct comparison between 2005 and 2011 IES estimates. There are methodological differences between these surveys which may necessitate adjustment of estimates before they can be directly compared. To make sure the estimates are somewhat sensible, however, the time period is limited to these two years. Significant methodological differences between the recent surveys and the 2000 and 1995 IES prevent meaningful comparison over a longer time period unless adjustments are made (Yu, 2008).

Table 1 shows (in monthly constant 2011 Rands) how estimates of mean expenditure differ across the national accounts and survey methodologies. As is expected, the national accounts estimates are significantly higher. The table also shows the estimated real increase in mean expenditure between 2005 and 2011, which are significant in light of Table 2. Table 2 illustrates the rand values (again in monthly constant 2011 Rands) of the weakly relative poverty lines. It shows that the percentage increases in the real value of the weakly relative poverty lines between 2005 and 2011 are less than the percentage increases in real expenditure shown in Table 1. This illustrates the less than unitary elasticity of the weakly relative poverty line.

Table 1: Real increases in mean expenditure, by data source

Data source	Mean consumption expenditure		
	2005	2011	real change
National Accounts (SARB)	2596	2900	11.7%
Survey Data (IES)	1854	2123	14.5%

Source: own calculations using 2005 and 2011 IES and SARB national accounts data. Values are in constant monthly 2011 Rands.

Table 2: Weakly relative poverty lines and South African absolute poverty lines

Poverty line	Poverty threshold		
	2005	2011	
StatsSA 2015 upper bound		779	
SALDRU upper bound		998	
Hoogeveen and Ozler upper bound		1164	
Weakly relative (NA)	988	1089	(10% real change)
Weakly relative (survey)	1054	1189	(13% real change)

Source: own calculations using 2005 and 2011 IES and SARB data. "StatsSA 2015 upper bound" refers to Statistics South Africa (2015); "SALDRU upper bound" refers to Budlender, Leibbrandt and Woolard (Forthcoming); "Hoogeveen and Ozler upper bound" refers to Hoogeveen and Ozler (2006). "Weakly relative (NA)" refers to the Ravallion and Chen (2011) method, while "Weakly relative (survey)" refers to the Chen and Ravallion (2013) method. All values expressed in constant monthly 2011 Rands.

Table 2 is most significant, however, in its comparison of the weakly relative poverty lines with the predominant absolute poverty lines used for South Africa.²³ It is notable that the relative lines are generally quite similar to the existing absolute lines. This is particularly supportive of the hypothesis that the weakly relative lines are a good measure of the relationship between country mean income and prevailing perceptions of poverty, as South Africa was not included in the database of countries used by Ravallion and Chen (2011) and Chen and Ravallion (2013) to calibrate their weakly relative poverty lines (Ravallion, Chen and Sangraula, 2008). Table 3 compares the prevailing “extreme poverty” absolute thresholds in South Africa with the \$1.25-a-day “physical survival needs” threshold of the weakly relative lines. The results are again somewhat similar, though there is more divergence than in Table 2.

Table 3: \$1.25-a-day line and South African “extreme poverty” lines

Poverty line	Poverty threshold
StatsSA 2015 food line	335
SALDRU food line	327
Ozler food line	480
\$1.25-a-day	255

Source: own calculations using ICP (World Bank, 2008). "StatsSA 2015 food line" refers to Statistics South Africa (2015); "SALDRU food line" refers to Budlender, Leibbrandt and Woolard (Forthcoming); "Hoogeveen and Ozler food line" refers to Hoogeveen and Ozler (2006). All values expressed in constant monthly 2011 Rands.

5.2 Analysing South African poverty using the weakly relative lines

Table 4 presents the poverty headcount ratios associated with the weakly relative poverty lines, calculated with the 2005 and 2011 IES data. The table is split into two specifications, determined by the method used to calculate the weakly relative line. Within each specification, the \$1.25-a-day line represents the global absolute poverty line. The associated headcount ratio can either be interpreted as the proportion of South Africans who do not have sufficient expenditure to meet basic survival needs (according to the capabilities approach), or as the proportion of absolutely deprived poor (according to the welfarist approach). We prefer the capabilities interpretation. It

²³ For discussion of these absolute lines see Budlender, Leibbrandt and Woolard (forthcoming), which reviews existing South African poverty lines and proposes the “SALDRU upper bound” indicated in the table.

would be somewhat perverse to suggest that the local “extreme poverty” lines in Table 3, which are more generous than the \$1.25-a-day line, therefore reflect some relative rather than absolute deprivation. These “extreme poverty” lines are based on the minimum cost of sufficient food, without any allowance for non-food expenditures. As is to be expected, the headcount ratios associated with the \$1.25-a-day line do not change between specifications, as its value is not related to mean national income.

Table 4: Headcount ratios of weakly relative poverty lines, by methodology

Poverty line	Headcount ratio	
	2005	2011
<i>Specification 1: National accounts method</i>		
\$1.25-a-day	14.1%	10.3%
Relative poverty	65.7%	61.1%
Constant 2005 line	65.7%	58.0%
<i>Specification 2: Survey data method</i>		
\$1.25-a-day	14.1%	10.3%
Relative poverty	67.5%	63.6%
Constant 2005 line	67.5%	60.1%

Source: own calculations using 2005 and 2011 IES. "National accounts method" refers to Ravallion and Chen (2011), while "Survey data method" refers to Chen and Ravallion (2013)

The headcount ratio associated with the weakly relative line includes all of the poor who have expenditure below the line.²⁴ Again, its interpretation will depend on whether the capabilities or welfarist conceptualisation is used. Within the capabilities tradition, the ratio represents the proportion of South Africans who have insufficient expenditure to achieve social inclusion, some of whom may also have insufficient expenditure to satisfy basic survival needs. Within the welfarist tradition, it is composed both of the absolutely deprived (those with expenditure of less than \$1.25-a-day) and the relatively deprived (those with expenditure on or above the \$1.25-a-day line but below the weakly relative line). Because we prefer the capabilities interpretation of the \$1.25-a-day line headcount ratio, this leads us to prefer the same approach when interpreting the weakly relative headcount ratio. The welfarist interpretation of the weakly relative lines requires a

²⁴ In other words, those with expenditure lower than the \$1.25-a-day line are not excluded from weakly relative line headcount ratio.

distinction between absolute and relative deprivation at a point which does not seem realistic in the South African context.

When looking at the changes in the headcount ratios over time, it is illustrative to compare the 2005 to 2011 decrease in the weakly relative headcount ratio to the comparable decrease in the “constant 2005 line” headcount ratio. For each specification, the constant 2005 line is equivalent to the 2005 weakly relative line, but is then held constant in real terms. It is only adjusted for CPI inflation into 2011. This allows us to juxtapose the poverty changes associated with a distribution-sensitive line as compared to this distribution-neutral line. Looking at the survey-derived specification, and the constant 2005 line, the national proportion of poor people decreases by 7.4 percentage points between 2005 and 2011. However according to the comparable weakly relative line, the proportion of poor people decreases by only 3.9 percentage points. The 3.5 percentage point difference between the headcount ratios in 2011 can be seen as the proportion of South Africans who would have exited poverty between 2005 and 2011, but because of a more unequal income distribution and increasing average standard of living, remain poor. In the capabilities tradition, their continued poverty can be understood as being due to their expenditure not increasing enough to meet the higher cost of social inclusion in the richer 2011 society. In the welfarist tradition, they still remain too poor relative to the higher 2011 mean income, thus rendering them unhappy about their relative position. The interpretation will depend on whether the capabilities or welfarist approach is adopted, but is fundamentally about expenditure not increasing fast enough relative to the country average.

As indicated above, the purpose of this paper is not to analyse poverty trends in South Africa. It is rather to investigate the applicability of the Ravallion and Chen (2011) weakly relative poverty line methodology, and to examine its interpretation in the South African context. The specific percentage point increases and decreases of the above discussion should therefore be interpreted with caution. The value of the section is in discussing interpretations of these lines in South Africa, rather than any claims about increases or decreases in poverty levels.

5.3 National accounts or survey-derived method?

This paper has presented both the Ravallion and Chen (2011) national accounts method for setting the weakly relative line, and the Chen and Ravallion (2013) survey data method. In application of these lines, a choice needs to be made for one or the other method. Most researchers will probably favour the survey-derived method. It is standard practice that relative poverty lines be based on the

same dataset as that used to measure poverty, and poverty is typically measured with survey data (Ravallion and Chen, 2013). The major criticism of the Ravallion and Chen (2011) method concerns this issue, and it is worth briefly reiterating their method to examine its correctness in light of this preferred practice.

With the data used in Figure 1, Ravallion and Chen (2011) relate local absolute poverty lines to private consumption expenditure for each country, from the national accounts. They use this relationship to derive the parameters indicated in Section 4.3.3, and Table 2 suggests that they approximate the relationship between private consumption expenditure and prevailing perceptions of poverty-threshold expenditure quite well, at least in South Africa. The potential issue arises when it comes to measuring the poverty associated with the Ravallion and Chen (2011) line, however. Attached to local absolute poverty lines, each country will have survey-data derived estimates of various poverty measures, such as the headcount ratio. In order to be a good measure of local poverty, the Ravallion and Chen (2011) line would need to result in similar poverty estimates to the local absolute lines, but this will not necessarily occur. Consider a country where estimates of expenditure derived from survey data are unusually low compared to equivalent national accounts estimates. Using the Ravallion and Chen (2011) method, we would calculate a poverty line that accurately represents the poverty threshold associated with that country's mean expenditure calculated from the national accounts, but which does not consider the country's unusually low survey data estimates. Relative poverty estimates derived from the survey data for this country would therefore be overstated.

This is not a significant issue in general if the difference between national accounts and survey data estimates is random or constant across developing countries.²⁵ However if there is some non-random process, some countries will have biased poverty measures. For example, if the gap between national accounts and survey data estimates is especially large for poorer countries, these countries will tend to have overstated poverty measures.²⁶ Without evidence showing that the gap between national accounts and survey data estimates is randomly determined or constant, it seems prudent not to assume it is so. In our view, this is the strongest argument against the national accounts method.

The survey method is not without potential flaws, however. As Ravallion, Chen and Sangraula (2009) point out, a method which relates survey-calculated mean consumption to absolute poverty lines

²⁵ Random differences could be significant for a particular country.

²⁶ Assuming, as is typical, that national accounts data generally leads to higher per capita expenditure estimates than survey-derived data.

may introduce a spurious relationship between these variables. It is often the case that the same dataset is used to develop absolute poverty lines as calculate mean consumption, and common measurement errors will likely induce a spurious positive correlation. However the potentially more persuasive argument for the Ravallion and Chen (2011) national accounts poverty line is simply that it fits the underlying data better than the Chen and Ravallion (2013) survey-derived line.²⁷ This is not an insignificant issue, as it is a major strength of the weakly relative lines that they are calibrated to the cross-country data. However this argument is very vulnerable to the main criticism of the previous paragraph, concerning the divergences between national accounts and survey-derived expenditure estimates. The survey-derived approach has the added benefit of allowing for sub-national relative poverty lines, which could be different, for example, in urban and rural areas. Our position therefore is to prefer the survey-derived weakly relative poverty line, which in the case of South Africa is in any case quite similar to the national accounts equivalent.

6. Conclusion

The primary contribution of this paper is to assess the appropriateness of the Ravallion and Chen (2011) and Chen and Ravallion (2013) weakly relative poverty lines for a particular developing country context, which in this case is South Africa. This involves examination of South African-specific empirical evidence concerning the theoretical justifications of relative poverty lines. Through reviewing literature on the South African determinants of subjective wellbeing and the identification of socially perceived necessities, we find that the South African evidence does support the use of a relative poverty measure, albeit in tandem with absolute and subjective poverty analysis. From this evidence we additionally note that what Ravallion and Chen (2011) call a “strongly relative” line is not appropriate in the South African context, and we agree that in the developing country context a poverty line should satisfy the Ravallion and Chen (2011) Weak Relativity Axiom of less than unitary elasticity to mean income.

There are already-existing relative poverty lines with less than unitary elasticity to mean income, however, and it is not this characteristic which distinguishes the Ravallion and Chen (2011) and Chen and Ravallion (2013) approach.²⁸ The primary advantage of the Ravallion and Chen (2011) approach is its calibration to cross-country data which relates national mean income to local absolute poverty lines. This approximates the relationship between local standard of living and prevailing perceptions

²⁷ As indicated in Section 4.3.3.

²⁸ For some examples of existing papers which suggest relative poverty lines with less than unitary elasticity see Foster (1998) and Madden (2000).

of what constitutes poverty, which is an appealing method by which to determine a relative poverty line. The result of this calibration is poverty lines with a changing elasticity to mean income, which we argue is desirable, and which results in weakly relative lines for South Africa which are quite similar to existing absolute lines.

Though we raise concerns about the theoretical justification for the Ravallion and Chen (2011) weakly relative poverty specification, we argue that the practical benefits of their lines, matched as they are to the cross-country data, outweigh these theoretical concerns.²⁹ We argue that their method is currently the best basis on which to develop a money-metric poverty line which is sensitive to how definitions of poverty change with aggregate living standards. It is important to note that if the scope of analysis is shifted beyond money-metric measures, then the subjective measures presented by Wright (2008) are an appealing method for determining local perceptions of what constitutes poverty. That these measures are time-consuming to construct and difficult to monetise, however, illustrate the usefulness of the easily-applied weakly relative lines.

This paper also outlines the methodology by which the Ravallion and Chen (2011) and Chen and Ravallion (2013) lines can be applied to the South African context, and discusses how weakly relative poverty may be interpreted in this context. We argue that a capabilities rather than welfarist interpretation is most appropriate for South Africa. Lastly, the paper considers which should be preferred between the Ravallion and Chen (2011) and Chen and Ravallion (2013) specifications. Mainly due to concerns about divergences between national accounts and survey data estimates, we prefer the Chen and Ravallion (2013) method. Ultimately this paper argues that the approach of weakly relative poverty is appropriate and useful for poverty analysis in the South African context, despite some theoretical caveats.

²⁹ There are also theoretical concerns, identified by Ravallion and Chen (2011: 1254), which we do not discuss in this paper. Chief amongst them is that their empirical implementation assumes that the “global weakly relative poverty lines change over time consistently with the cross-sectional variation seen between countries”. While this is indeed a contestable assumption, we see little way around it if relative poverty lines are to be calibrated to the existing relationship between standard of living and prevailing perception of poverty, which is to us a very appealing method of determining a relative poverty line specification

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