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The Low Income Gap: A New Indicator Based on a Minimum Income Standard

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Abstract

In many high-income countries, governments seek to ensure that households at least have sufficient incomes to afford basic essentials such as food and clothing, but also to help citizens reach socially acceptable living standards allowing full participation in society. Their success in doing so is commonly monitored in terms of how many citizens are below a poverty line set relative to median income, and by how far below it they fall (the ‘poverty gap’). Yet the threshold below which this gap starts to be measured is arbitrary, begging the question of what level of low income needs addressing. A more ambitious measure, presented in this paper, considers the extent to which people fall short of a benchmark representing a socially agreed minimum standard. This ‘low income gap’ can be used to represent the distance a society has to go to eliminate income that is undesirably low. The paper presents the indicator, its meaning and some recent trends in the United Kingdom, where the methodology behind the indicator has been pioneered. The results demonstrate that this empirically derived benchmark has the potential to be of value in other countries, in assessing whether they are making progress in reducing low income.

Keywords Poverty · Income · Deprivation · Living standards

1 Introduction

Indicators of poverty and low income are useful for public policy in monitoring how many households have income at an undesirably low level. But on what basis should such a level be set? Thinkers from Adam Smith (1776) to Peter Townsend (1979) have emphasised that meeting one’s needs is about reaching standards considered customary in one’s own society. High-income countries¹ therefore typically use an income threshold set at a fixed percentage of mean or median household income as an indicator of poverty, against which the success of public policy in this domain can be judged.

¹ The terms ‘high income’, ‘upper-middle-income’ etc. are used in this paper to describe countries as defined by World Bank (2016) classifications.

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Yet using a relative-income threshold on its own to monitor poverty and low income has important limitations as an indicator of whether governments are achieving their goals. Two such limitations have been particularly important in the past decade. One is the fact that a 'relative poverty line' may not be fixed at a level that sufficiently captures the situation of those groups struggling to get by whom public policymakers would like to help. The second is that progress over time in reducing low income may not be adequately monitored by a measure automatically pegged to average incomes—particularly in a period when average incomes have sometimes fallen, reducing the relative-poverty threshold regardless of whether minimum household needs have also gone down.

This paper introduces a complementary indicator of low income that can help address these two limitations. This is based on the Minimum Income Standard (MIS): an income threshold for each household type derived from a 'budget standard', based on lists of items that members of the public say people require to meet their basic material needs and to be part of contemporary society.

Specifically, the paper presents a 'low income gap' indicator that summarises the extent to which members of the population have household income below the MIS thresholds, combining incidence of below-MIS income with the average 'depth' of the shortfall. This indicator complements relative-income indicators in two ways.

First, it takes account of low income among a wider section of the population than conventional relative-income thresholds such as 60% median income (the main poverty threshold used in the European Union). The MIS research shows that a minimum acceptable living standard as described by the general public generally requires a higher income than these official 'poverty lines'. This finding corresponds with public debate about helping people who have been left behind economically, which is wider than just allowing people to escape poverty.

Second, an evidence-based indicator of what is considered a minimum to live in contemporary society, regularly updated, avoids the disadvantages of more abstract calculations, whether deriving from an 'absolute' or a 'relative' threshold. 'Absolute' poverty lines, expressed as thresholds fixed over time in real terms, do not take account of changes in society. 'Relative' thresholds index such changes automatically to median income, meaning that in a recession when median income is falling, poverty rates can fall even when nobody is getting better off. The MIS-based indicator allows for changes over time in the threshold due to changes in norms and living patterns, but only in relation to identified changes in the goods and services that households require, rather than being triggered, for example, by short-term fluctuations in average incomes.

Such an indicator may not be of much interest if it produced similar results to poverty based on a relative-income threshold. However, an important contribution of this paper is to demonstrate how it has recently produced substantially different results, using the example of the United Kingdom, where MIS data have been developed to inform income distribution comparisons. The purpose of the paper is therefore to demonstrate that the indicator described can be useful in identifying trends that inform public policy.

The remainder of the paper is set out as follows. Section 2 sets the policy context, in terms of a widening concern about low household income, going beyond the context of poverty and severe hardship. Section 3 then considers how budget standards measures can contribute to low income indicators, set in the context of how poverty relative to contemporary standards of living has been conceptualised. Section 4 summarises the method used within the MIS research and how the results are used to produce the 'low income gap' indicator proposed, and ends by explaining the rationale behind the choice of indicator and how it should be interpreted. Section 5 then presents results using this indicator, as an

illustration of its value in producing policy-relevant indicators of income trends. The paper concludes by discussing what these results tell us that is new, and the potential for using such an indicator more widely.

2 The Context—A Widening Concern About Low Household Income

The monitoring of progress in addressing low income needs to be set in the context of why it is of concern to contemporary societies. The long-term reduction in inequality observed in the mid-twentieth century (Kuznets 1955) went into reverse from around the 1980s onwards, especially in the United Kingdom and the United States (Hills 1995; Piketty 2014). This led to particular emphasis on a group with the lowest incomes who had not gained from economic growth, and to characterisations initially of an ‘underclass’ (Mead 1986; Murray 1984) and subsequently to ‘social exclusion’ (Byrne 2005; Levitas 2005). Such emphasis on a group (roughly the bottom quintile) being ‘left behind’ informed ambitions to reduce relative poverty, such as then UK Prime Minister Tony Blair’s (1999) pledge to eradicate child poverty in the UK by 2020, using household income below 60% of median income as the central indicator. Child poverty has been a particular focus for UK policy, because children are more at risk of poverty than any other broad demographic group.

More recently, political discourse has emphasised the stagnation of living standards and income among a wider group who face insecurity, typically households who have someone working but are below median income (Commission on Living Standards 2012). In the UK this group have been variously labelled the ‘squeezed middle’ (Parker 2013) or the ‘just about managing’ (May 2016), implying a policy concern with helping those with low but not necessarily the lowest incomes. This concern reflects a lack of significant growth in the real incomes of households at and below the median over the past decade, with no sign of a significant improvement (Corlett and Clark 2017). While this phenomenon has been evident since at least the start of the 2010s, it was given additional attention with the election of Donald Trump in the United States, the vote for Brexit in the UK and the increasing strength of some European parties on the extreme right and left, which some commentators attribute in part to the disillusion of voters who feel left behind economically, even though they may not be in deep poverty (Barber 2017; Elgenius 2017; Inglehart and Norris 2016).

A widening of concern about who is being left behind, to include not just the poorest households but also those who are frustrated by their inability to progress to a reasonable living standard through work (Parker 2013), suggests that progress against an income threshold portrayed as a ‘poverty line’ may not tell the whole story. Whelan et al. (2017) explore how an alternative multi-dimensional indicator can capture changes in the economic fortunes of groups in different ‘income classes’, using a measure of ‘deprivation’, based on not being able to afford certain things ranging from a car to keeping one’s home warm, and an index of ‘economic stress’ based on debt and reported financial difficulties. This analysis identifies recent stresses among income classes not just in poverty (below 60% median income) but also ‘precarious’ (60–75% of median income) and ‘lower-middle’ (75–125% of median income). Whelan et al.’s findings thus demonstrate how income that is low but above the poverty line can be associated with certain levels of deprivation and economic stress. As set out at the end of Sect. 4 below, this paper presents the rationale for monitoring the extent of low income against a threshold that would include most of the

‘precarious’ and a few of the ‘lower-middle’ group referred to by Whelan et al., while still giving greater weight to those with incomes further down the distribution.

3 Relative Poverty and Budget Standards as Complementary Ways of Understanding Low Income

Relative poverty measures have become important in relation to Townsend’s (1979) definition of people being in poverty if they cannot afford a living standard considered ‘customary, or at least widely encouraged or approved in the societies to which they belong’ (Townsend 1979, p. 31). A similar concept was first articulated at the European level by the European Council in 1975 (Eurostat 2013, p. 2), defining poverty as having resources ‘so inadequate as to preclude them from having a standard of living considered acceptable in the society in which they live’. In high-income countries, the number of people living below a percentage of average income has become the most common indicator of falling behind society’s norms, and the European Union (EU) uses 60% of national median income for this purpose. There is wide recognition that income tells only part of the story, and multidimensional indicators can be of value (Eurostat 2013; Alkire and Foster 2011; Amir-ud-Din et al. 2017), but relative-income poverty remains the main summary measure of progress in reducing the incidence of low income in these countries. This indicator is in practice most commonly used to calculate *incidence* of poverty. However, the importance of *depth* of poverty (how far below the threshold, on average, people fall), and hence a *poverty gap* (incidence times depth) are also well recognised in the literature (Sen 1976; Shorrocks 1995; Alkire and Foster 2011).

Relative-poverty lines implicitly assume that the threshold of poverty is directly proportional to a country’s mean or median income. Ravallion and Chen (2011), point out that such an assumption would be justified if poverty derived purely from the utility of relative income itself—the intrinsic benefit and harm derived from keeping up with or falling behind the norm. Yet they show that relative income cannot be the only determinant of minimum needs, or in the poorest countries the poverty line would tend to zero. Furthermore, they show that the utility derived from having access to specific goods and services deemed necessary in one’s society, yielding dignity and the ability to participate in customary social and economic activities, is not purely relativistic. This is closely related to Sen’s (1983, 1985) concept of capabilities. Ravallion and Chen suggest that the cost of achieving these capabilities does rise as societies get better off, but more slowly than in direct proportion to increases in average national income. Their empirical evidence comparing official poverty lines set by developing countries to average income in those countries supports this hypothesis—at least to the extent that these lines do reflect minimum costs. Specifically, while the poorest countries set something like an ‘absolute’ poverty line, lower-middle and upper-middle ones construct income poverty lines that rise in absolute terms, but are lower as a percentage of the national average, the higher the average national income. For ‘high income’ countries, however, the hypothesis is not testable by comparing official poverty lines with average incomes, since these countries’ definition of poverty in relative-income terms simply begs the question of whether such direct proportionality is justified.

Budget standards studies, by looking more specifically at how much is required as a minimum in particular countries at particular times, can help to ground low income indicators in contemporary social realities. Such studies estimate what different types of household need based on ‘baskets’ of necessary goods and services constructed by experts, by

members of the general public or by a combination of the two (Deeming 2017; Saunders and Bedford 2017; Bradshaw et al. 2008; Family Budget Unit 2005). The contribution of these studies can be considered in relation to three limitations of relative income measures: the potential non-proportionality of minimum relative to average income, as raised above; the arbitrariness of setting the level of a poverty line as a percentage of mean or median income; and the extent to which minimum requirements are affected by factors other than income itself.

The first issue, of whether counting how many households fall below a constant percentage of average income is a useful indicator in making comparisons across place or time, is relevant both to comparisons between countries with wide differences in income and to comparisons over time in countries with changing income levels. Are bodies like the EU right to compare the numbers below 60% median in countries of highly variable levels of prosperity? Such a measure suggests, for example, that a Swede with below 60% of the Swedish median faces relative poverty with implications that are comparable to someone below 60% of the median in Greece, where the median income is only a third as high (Eurostat 2017). While the cost of maintaining capabilities associated with social participation is likely to be higher in Sweden than in Greece, because social and economic structures are influenced by the prevailing income level, it may not be three times as high. The Greek case also raises issues over whether such proportionality applies to changes over time: the median income in Greece fell by over one-third between 2010 and 2015 (Eurostat 2017), but this has not necessarily made it one-third cheaper to meet minimum needs in the context of Greek society; indeed, by 2013, the poorest fifth of Greek households were having to devote two-thirds of their income to food and housing, requiring them to halve their expenditure on other essentials like clothing and household goods (Kaplanoglou and Rapanos 2016, pp. 14–15.) The cost of achieving capabilities is unlikely to follow rapid changes in median incomes, but more likely to be influenced by long-term changes in society, whether structural (such as patterns of access to services) or cultural (such as norms relating to entertainment, communication, clothing or diet).

Budget standards calculate minimum income requirements with more direct reference to contemporary, country-specific, norms as well as scientifically recognised requirements such as healthy diets. Consensual methods such as the Minimum Income Standard research can directly investigate the extent of continuity and change over time in what is seen as a minimum (Davis et al. 2018). Such minimum budgets and the definitions used to produce them are culturally specific, making direct comparison of results across countries difficult (Valadez and Hirsch 2014), but ensuring that the minimum is appropriate to the country where it is applied, and giving scope for tracking the extent of low income against benchmarks kept up to date according to a consistent definition.

The second issue is whether 60% median or any other relative-income percentage can be empirically justified. Conceptually, the notion of having the minimum resources needed to participate in society (Townsend 1979; Bradshaw et al. 2008) suggests an income point that divides adequate from inadequate resources, rather than just a continuum of economic well-being. Townsend suggested that such a threshold could be estimated by observing below which income level the incidence of deprivation rises sharply, where deprivation is measured as the proportion of households reporting that they are unable to afford certain necessities. However, in the 4 decades since this was proposed, there has been no clear-cut empirical evidence identifying an income poverty line using this method. Rather, observations of the relationship between income and deprivation have suggested a more continuous escalation of the risk as income falls over a wide range, and indeed the observed increase in risk stops rising below a certain level, possibly because of respondents misreporting

very low income and other measurement difficulties (Berthoud and Bryan 2011; Hirsch et al. 2016; Ferragina et al. 2013).

An alternative threshold produced through a budget standard, representing what people require as a minimum in order to function in contemporary society, needs to be carefully distinguished from poverty measures in terms of its meaning. Importantly from a policy perspective, it may represent a living standard that society considers it to be desirable for everyone to move towards, but not necessarily a level below which the risk of specific forms of hardship or deprivation start to increase more rapidly. In this context such a standard can be seen as a politically relevant benchmark but not as a poverty line. Policies may seek in the long term to reduce the number of people below such a minimum, but may also aim to improve incomes among those who remain below this level, including below some lower 'poverty line' at which the risk of material hardship is greater.

Whether in relation to a poverty threshold or a minimum income standard, there is a strong case for considering not only the incidence of how many people fall below a line but also how far short they fall. In the poverty literature, 'depth' of poverty has been highlighted both for income and deprivation indicators, the latter relating to how many ways in which one is deprived (Delamonica and Minujin 2007). In the case of income, the concept of a 'poverty gap', expressed as a ratio showing the average amount (including zero) by which members of the population fall below the poverty line, was pioneered by Sen (1976), has generated many variations (Shorrocks 1995, Alkire and Foster 2011, p. 292) and is part of the World Bank's suite of World Development Indicators (World Bank (n.d)). Moreover, poverty gap indicators have been shown to be useful in producing results distinct from threshold indicators, for example by highlighting a period in the United Kingdom (1981–1990) when the overall extent of poverty was worsening even though its incidence remained similar (Jenkins and Lambert 1997, p. 326).

To some degree, using such an indicator measuring the aggregate gap below a line reduces the importance of where exactly a threshold is set. For example, it reduces the impact on the indicator of people going from slightly above to slightly below the threshold, or vice versa, relative to changes in the depth of poverty among people well below the line. On the other hand, it is important that even a weighted measure of a poverty gap neglects part of a wider low income problem by giving a zero weight to those above the poverty line. As referred to in the previous section, there has been increasing attention to a large group of the population on modest but not very low incomes who may be excluded from poverty measures. A 'low income gap indicator', comprising a weighted count of those falling below an adequate living standard, situated some way above the poverty line, has the potential to take account of a wider range of households, whose low income is of public concern. Yet in this case, a weighted indicator, that takes account of depth and not just incidence of falling below the line, is particularly significant because of the wide range of situations of those below the line. A threshold indicator alone might for example show positive trends among those on low working incomes even while incomes deteriorated among much worse-off groups who were out of work.

The third issue concerns the usefulness of using income thresholds as a guide to social policy. In both lower and higher income countries, economic well-being depends on a wide range of influences apart from income. As a result, indices of deprivation need to be multi-dimensional (Bourguignon and Chakravarty 2003). In the context of global poverty, Amirud-Din et al. (2017) define deprivation in terms of nine basic 'functionings', and develop indicators aimed at measuring each of these. In high-income countries, where issues of access to basic amenities such as clean water are less important, the income needed to escape deprivation interacts with the availability and cost of services: a household with

access to free or subsidised health care, or reasonably priced housing or transport, will have very different living standards from a household without these economic advantages (Nolan and Whelan 1996). In this context, it still makes sense for policy to have objectives with regard to raising incomes to adequate levels, but it needs to do so with an awareness of factors that help determine minimum household spending requirements, and potentially in combination with policies that help bring down these costs. A budget standard based on a priced basket of goods and services can be more sensitive to changes in costs, and to structural differences in costs faced by different household types, than a relative income threshold. For example, it takes account of the extent of and changes in public subsidies that affect private spending requirements on services such as health and transport.

4 Methodology: Using the Minimum Income Standard to Produce an Income Gap Indicator

Since 2008, the Minimum Income Standard (MIS) has been calculated regularly in the United Kingdom, based on research in which focus groups comprising members of the public are tasked with identifying the prerequisites for a minimum living standard.

The details of this method have been described elsewhere (Davis et al. 2017; Valadez-Martínez et al. 2017; Bradshaw et al. 2008). In summary, the method proceeds as follows. Deliberative focus groups are undertaken, tasked with drawing up budget standards for each of a range of different household types. Each group comprises members of the general public from the household type under discussion, from diverse socio-economic backgrounds. A 'task group' works to agree a detailed lists of goods and services required to reach a minimum living standard, working to a common definition. Two subsequent rounds of groups confirm or amend these initial lists, and resolve any outstanding disagreements. Expert input is used to provide information on matters such as nutritional adequacy, which feeds into this process. The results are used to compile a minimum budget for each household type. In the UK, rounds of groups have been held every 2 years since 2008, typically comprising 20–30 groups on each occasion, with budgets 'rebased' every 4 years for any one household type in order to ensure they remain up to date. The method has been replicated in a similar form in other high-income countries including France (Gilles et al. 2014) and Ireland (Collins et al. 2012), and in pilot form in two middle-income countries, Mexico (Valadez-Martínez et al. 2017) and South Africa (Byaruhanga et al. 2017).

Previous budget standards studies have had limited potential for providing direct indicators of the incidence of low income, because they have calculated only the budgets of a limited number of specific household types—such as a family with two children aged exactly 10 and 4, which most of the population would not precisely match (e.g. Family Budget Unit 2005; Saunders and Bedford 2017). They have also made occasional rather than regular calculations. The UK MIS research, in contrast, is regularly repeated, providing annual updates at least with inflation. It applies to a wide range of household types and allows estimation of thresholds for all types of household. This allows systematic comparison with the actual distribution of household incomes that has not previously been possible.

The ability to use MIS to derive benchmarks for all UK household types, rather than just selected examples, derives in the first instance from a 'modular' structure to the calculations—using rules about the effects of including different types of household member rather than just making a calculation for an example household as a whole. This involves assigning individual spending needs to family members, including children in different age

bands, and others to families as a whole according to size, incorporating assumptions about economies of scale. This directly produces benchmark income requirements for 80% of the UK population, comprising 107 household types (varying mainly with number and age of children). In order to produce a full estimate of the low-income profile of the population, a further set of assumptions are made (Hirsch et al. 2016, pp. 46–52). For example, currently there is no direct research on the needs of couples with more than four children, but a budget for a larger household can be estimated by assuming that each additional child costs the same as the additional cost of the fourth child. An estimate of the costs of additional non-dependent adults, also not directly covered by MIS, requires further assumptions. Non-related adults are assumed to have the same costs as if they were in separate households, minus a small saving due to economies identified in a separate study on the needs of single working-age people sharing accommodation, such as requiring only one set of living room furniture, and achieving economies of scale on heating bills (Hill et al. 2015). For adult household members who are related to each other, greater economies due to intra-household sharing are assumed, informed by separate research on family sharing (Hill and Hirsch 2019). While the analysis involves assigning ‘estimated’ weights to household members in some atypical households, these are far less crude than the system used for equivalisation of poverty data, which gives equal weight to every additional household member aged over 14, whether a schoolchild, a young adult living with their parents, an additional single person in a shared house or a spouse of either working or pension age (Department for Work and Pensions 2016).

A further step required in monitoring the number of people falling below benchmarks based on MIS arises from the need to consider income changes annually, based on research that takes place less frequently. Each budget is ‘rebased’ (recalculated using fresh research) every 4 years. This regular updating is already an improvement on previous budget standards research based on studies funded as ‘one off’ exercises. Saunders and Bedford (2017, p. 126) note for example that in their original work in the late 1990s they advocated 5-year updates, but that instead, nearly 2 decades had elapsed before repeating the work, and that comparisons over time were further limited by changes in the family types used. Yet even 4-yearly, consistent updates in MIS do not fully resolve the ‘misalignment’ of changes in the benchmark and in the actual incomes to which it is being compared annually. For example, were there to be a period of rising general living standards, in which every household’s income rose 1% a year in real terms, and were the concept of a minimum to rise exactly in line with general living standards, one might expect a smooth increase in the minimum benchmark by 1% a year, with no change in the numbers who fell below it. However, if baskets were only revalued every 4 years, but income shown to be rising annually, household incomes would appear to rise relative to the minimum in the years between the revaluations, and fall back when the benchmark jumped every 4 years. Such discontinuities could be a significant disadvantage of a budget standards benchmark rather than a relative-income benchmark, which changes continuously. In order to address this, each year’s budget in this analysis is represented as an inflation-adjusted average of calculated budgets over 4 years. (Each budget represents cost at a point of time, but incomes are surveyed over the course of a year. The four budgets that are averaged therefore measure costs (a) a year before the start of the survey year, (b) at the start of the survey year, (c) at the end of the survey year and (d) a year after the end of the survey year.) In other words, the effect of any real-terms change resulting from the quadrennial recalculation of baskets is introduced gradually, by using a rolling 4-year average.

Using these MIS-derived benchmarks for the whole UK population, regular comparisons are made between actual income net of taxes, housing and childcare costs, and the

minimum required by households (Stone et al. 2018). The income data derives from the Family Resources Survey (FRS), the UK's principal, publicly funded annual household income survey with an annual sample of around 20,000. It is worth noting that secondary analysis confirms a strong relationship between income measured relative to MIS and the risk of deprivation. Hirsch et al. (2016) indicated that the risk of deprivation, defined as being unable to afford key items considered by the population as essential, increases continuously as households fall further short of MIS, with those below around three quarters of the MIS level having a four times greater chance of deprivation than households with incomes above MIS. Moreover, analysis undertaken by the Scottish Fuel Poverty Definition Review Panel within the UK (2017, p. 128) found that income relative to MIS is a more accurate predictor of a range of adverse outcomes than income relative to the median. Qualitative evidence also suggests that having an income below the MIS level has socially undesirable consequences. A study of families with children that have incomes at least 10% below the MIS level (Hill et al. 2016) found that while some just about coped, most led constrained lives, and those falling at least 25% below MIS were increasingly at risk of hardship and debt unless they had support from extended family.

4.1 The Low Income Gap Indicator

Using the above method of comparing actual household income to the MIS benchmarks, this paper proposes a 'low income gap' indicator. Like the 'poverty gap' indicators discussed above, this is defined as the percentage of the population in households below the income threshold times the average amount (in percentage terms) that they fall below it. The indicator is proposed as a means of aggregating the progress of policy in tackling low income overall, covering everyone living below what members of the public think you need for an adequate standard of living, and not just below a poverty line. Importantly, it adopts not the dichotomous approach of simply counting the incidence of households below a line, but is weighted by how far households fall below this threshold. This feature is particularly important when using a threshold below which people are at risk of being 'left behind', but who may not necessarily be in serious hardship or poverty. Simply tracking the incidence of incomes below this line without measuring depth could present as an improvement a situation where people on modest incomes went from just below to just above the threshold, even while those with much lower incomes, with a high resulting risk of material hardship, became worse off.

5 Results

Overall, the comparison of UK household incomes relative to the MIS threshold shows that 29% of the population were living below MIS in 2016/17, compared to the official estimate of 22% individuals below 60% of median income, after housing costs (Department for Work and Pensions 2018). The difference is due to the MIS level being above the conventional poverty line for most household types, typically around 70–85% of median income after housing costs (Davis et al. 2018). An indicator showing trends in the low income gap relative to MIS therefore captures what is happening to the incomes of a wider section of the population than conventional poverty indicators—including those in 'precarious' and in some cases 'lower-middle' income classes according to Whelan et al. (2017) classification.

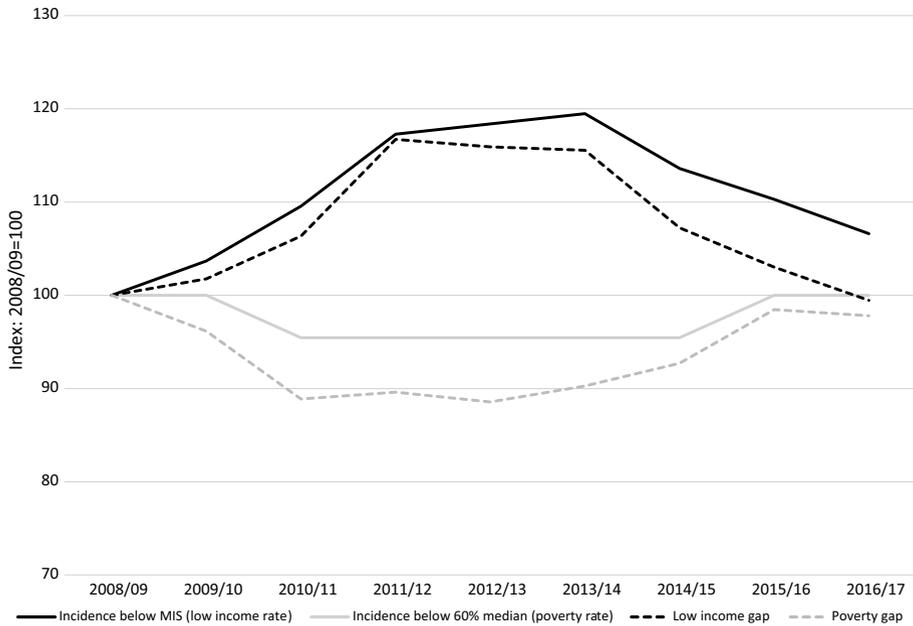


Fig. 1 Poverty and low income, incidence and gap, UK (2008/09=100). Definitions: Low income gap=number of individuals in households below MIS times the average percentage they fall short. Poverty gap the same with respect to households below 60% median income after housing costs. *Source:* Author calculations from Family Resources Survey and MIS database

The key trends since 2008/09 to 2016/17 are shown in Fig. 1. This graph shows that the direction and magnitude of trends in low income are sensitive to which indicator is used.

Between 2008/09 and 2011/12, in the wake of the global financial crisis, the percentage of individuals in households below MIS rose sharply, while the percentage in households below 60% median income fell modestly. This difference can be explained simply by the fact that during this period, median incomes fell in real terms (relative to the Consumer Prices Index, CPI), while the Minimum Income Standard rose relative to CPI. A large part of the increase in MIS was due to faster than average inflation rates for some essentials, causing the inflation rate for an essential basket of goods and services to be higher than for CPI (Davis et al. 2016, p. 39). Moreover, the content of MIS baskets remained largely stable during this period (although private transport costs rose due to changing perceptions about the availability and adequacy of public transport), implying that the fall in a relative-income poverty line during a period of economic recession was not reflected in any reduced perception of what is required to meet minimum needs. Conversely, after 2014, these trends went into reverse. During this period, MIS budgets were stable in real terms, while incomes rose slightly faster than inflation, causing the numbers below MIS to fall.

However, the relative poverty rate increased, implying that the number of people brought below the poverty line because their incomes rose more slowly than the median exceeded those raised above the line because their incomes rose faster than the median.

Figure 1 also plots the low-income and poverty gap indicators over time, which show the aggregate 'gap' between actual income and the threshold falling relative to incidence, implying that average depth below these thresholds fell. Over the period as a whole, this

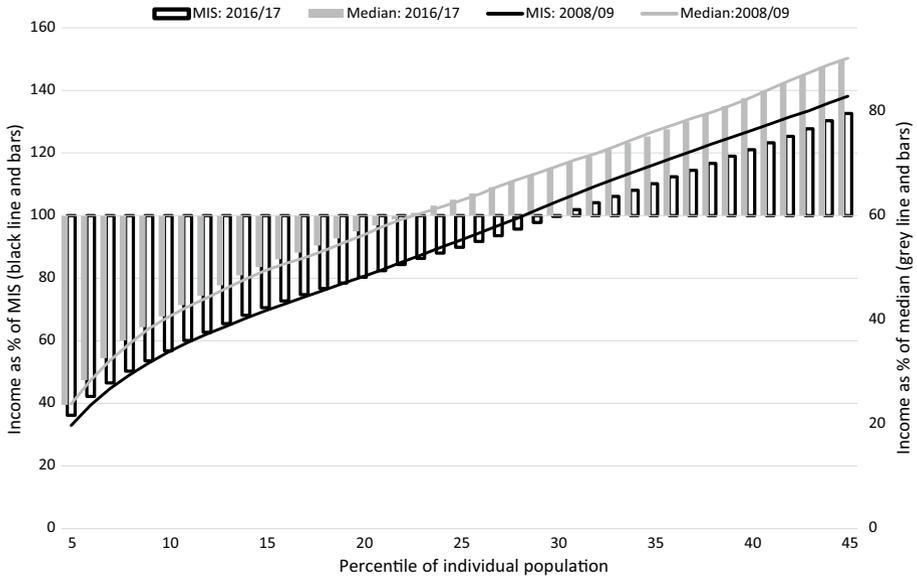


Fig. 2 Household income as % of MIS threshold (left hand scale) and median income (right hand scale), UK, 2008/09 and 2016/17. *Source:* Author calculations from Family Resources Survey and MIS database

phenomenon has been particularly marked in the case of the MIS/low income indicators. Over the period as a whole, more people have fallen below MIS, but the overall low income gap has not grown. This can be explained by the fact that to a large degree, the deterioration in incomes has been seen among people in work, who do not have very low incomes (Stone et al. 2018). Those on out of work benefits were initially protected by index-linking of benefits, and a subsequent freeze in their level, as well as other benefit cuts introduced from 2016 onward, was not yet being felt at the time of reporting. This makes the level of the income gap of considerable interest for future observation.

Figure 2 helps interpretation of these results further in relation to the change in the income distribution between the start and end of this period. The bars show percentiles of the distribution relative to MIS and median income for 2016/17, and the lines for 2008/09, in each case centred on the relevant income threshold (100% of MIS or 60% of median). Across most of the lower part of the distribution, each bar is close to its equivalent line, showing little change since 2008. However, for the MIS comparisons, there is a gap close to and above the MIS level that indicates smaller percentages of the population reaching, for example, 90%, 100% or 110% of MIS in the later than the earlier year. (This is offset by somewhat more reaching given percentages of the MIS level at the bottom of the distribution.) Overall, these results show significant changes in income for people just above or just below the MIS line. On the one hand, this indicates that changes in incidence somewhat over-emphasise the rise and fall in number below MIS during this period, insofar as it is driven by people falling only slightly below MIS. On the other hand, it shows that there is a large group of people close to this line who may be ‘just about managing’ and find it hard to manage if their situation deteriorates—people not identified if one looks at the poverty line alone.

The low income gap can also be used as an indicator to compare the extent of low income across groups, and how this is changing over time. The following comparisons

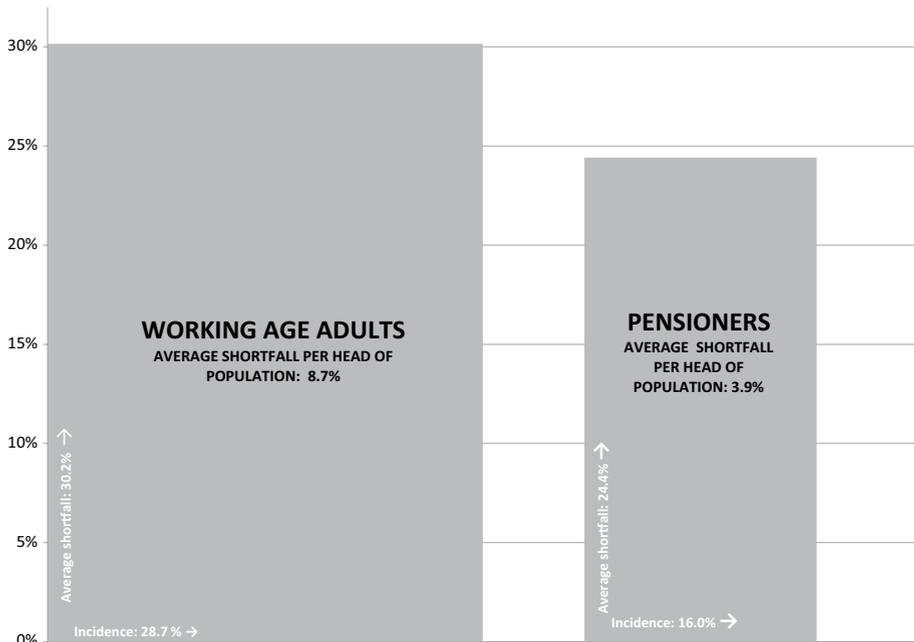


Fig. 3 ‘Low income gap’ UK 2016/17: a comparison across two groups. The percentage of the population falling short of MIS (horizontal axis), the average percentage by which they fall short (vertical axis) and hence the average shortfall by head of population (area of each block). *Source:* Author calculations from Family Resources Survey and MIS database

divide the population into three groups based on age: pensioners (people over the state pension age), children (people aged under 16 or under 19 and still in full-time secondary education) and working age (everybody else). Note that these broad categories, used commonly in UK income data, cover all individuals by age based on the income of the households they live in. They thus to some extent overlap in terms of the households they cover: the household income of a family with children affects both adults and children within that household.

Figure 3 illustrates a comparison between two of these groups, using as an example a particularly striking comparison: working age adults and pensioners. The incidence of low income is nearly twice (1.9 times) as great for the former than the latter. In addition, the average shortfall for pensioners who do fall short is somewhat smaller than for those of working age. As a consequence, the difference between the groups is even greater when considering the overall income gap than the incidence of low income: for working age adults, the income gap is over double (2.2 times) the pensioner level.

Table 1 considers how the low income gap for different age groups has changed over time. It shows that even though, for the population as a whole, a rise in incidence has been fully offset by a fall in depth (as reflected in Fig. 1 above), this does not hold for all groups. Working age adults, who comprise 60% of the population, saw a substantial decrease in depth and only a modest increase in incidence, causing the low income gap to fall. For children, and pensioners, in contrast, a greater increase in the incidence of low income was offset by only small falls in depth, causing the low income gap to rise.

Table 1 Low income gap over time, for different population groups

	Per cent of population below MIS (incidence) [%]	Average per cent that they are below MIS (depth) [%]	Low income gap (incidence times depth) [%]
All population			
2008/09	27.2	30.9	8.4
2016/17	29.0	28.8	8.4
Children			
2008/09	39.6	28.7	11.4
2016/17	42.5	28.1	12.0
Working age			
2008/09	27.4	33.0	9.0
2016/17	28.7	30.2	8.7
Pension age			
2008/09	12.3	25.1	3.1
2016/17	16.0	24.4	3.9

Figure 4 illustrates very different patterns of income distribution, relative to MIS, across different groups. As seen in Table 1 above, not only are there fewer pensioners than average on low incomes but the average shortfall is more modest than for other groups. Figure 4 shows few pensioners on very low incomes, with those on the fifth percentile being about a third below MIS, compared to around two-thirds below for the fifth percentile of working age adults and children. On the other hand, while children are far more likely to be below MIS than working age adults, they have a similar chance of having very low income, below about half of MIS, and a relatively high proportion of children below MIS do not fall a long way below the line. Consequently, the average shortfall is highest among working age adults below MIS, reflecting the fact that within the UK adults without children get weaker social protection than families: UK safety-net benefits are lower as a proportion of MIS for the former than the latter (Padley and Hirsch 2017, p. 9; Stone et al. 2018).

In the case of housing tenure (Fig. 5), whereas social tenants are by far the most likely to have incomes below MIS compared to other groups (reflecting the targeting of eligibility for social housing in the UK on economically disadvantaged groups), the average shortfall is lower than for private tenants below MIS. Figure 5 shows that as many private as social tenants have very low incomes, below half of MIS. This reflects the fact that income here is measured after housing costs; people on low incomes who face high rents as a result of living in private accommodation are particularly vulnerable to having low disposable incomes. These larger shortfalls mean that the greater extent to which social compared to private tenants experience low income is not as great when considering the low income gap as it is for the incidence of low income. Conversely, home owners are not only less likely to be below MIS, but when they are, their shortfall is on average smaller. This combines to produce an overall low income gap only about a fifth as much for home owners compared to tenants.

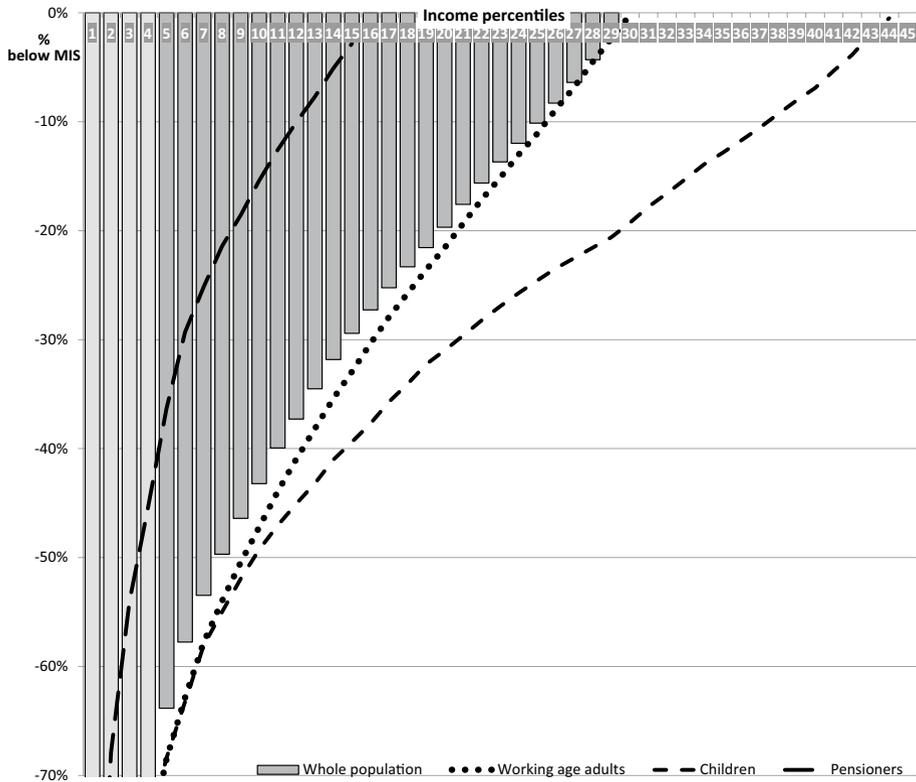


Fig. 4 How far income falls short of MIS, by income percentile in 2016/17: breakdown by demographic group. *Source:* Author calculations from Family Resources Survey and MIS database. Reported incomes for bottom four percentiles considered unreliable (Hirsch et al. 2016)

6 Interpretation of Results for the UK

The analysis in the previous section, focused on the UK, sheds light on the developing profile of low income there in ways that can be of interest to policy makers. It shows that the number of households with incomes below a minimum standard has risen over the past decade. For working age adults, but far less so for children and pensioners, this has been associated with more people being just below the MIS line, and hence a reduction in the average ‘depth’ of low income. For children, the group with the highest risk of low income, this indicator is particularly useful in assessing the ongoing effects of a major shift in policy. Up to 2010, the most explicit objective in relation to low income was to reduce child poverty, and one consequence of this was that in the period immediately following the 2008 financial crash, benefits and tax credits supporting those on the lowest incomes were being protected, at a time when income from work was falling in real terms. However, from 2015, the UK government has been putting increasing emphasis on improving the earnings of people on low pay, and less on state transfers—a policy that will help selected households with the lowest hourly pay and the most working hours. However, such an approach greatly disadvantages those who are work-poor (i.e. households with nobody working or with few combined working hours relative to the number of adults in the household), by freezing, and in some cases cutting, benefit and

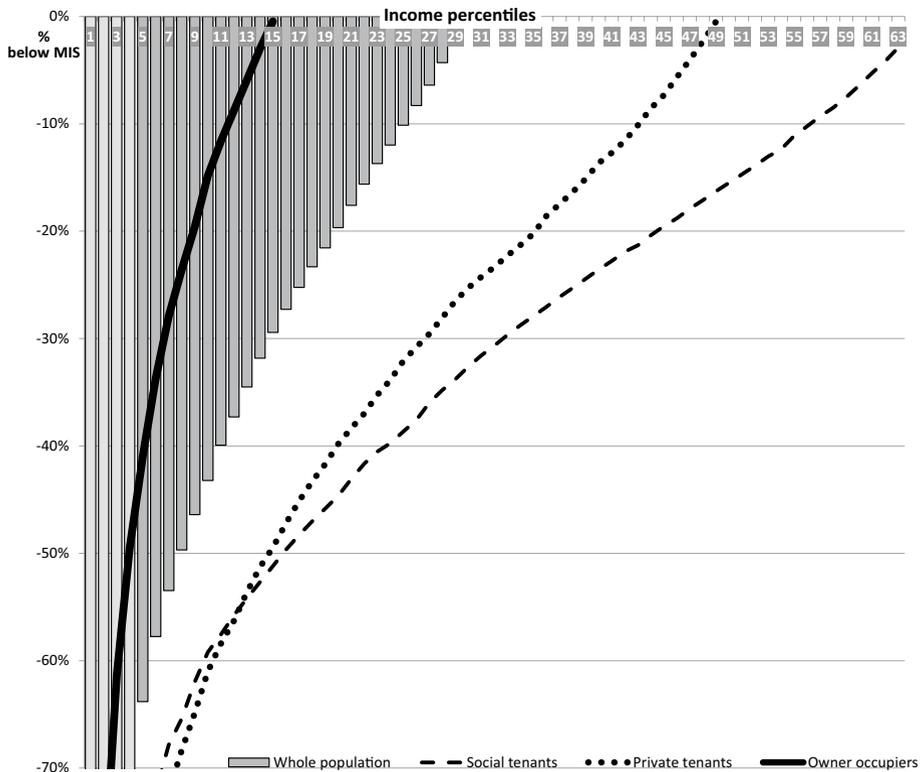


Fig. 5 How far income falls short of MIS, by income percentile in 2016/17: breakdown by housing tenure. *Source:* Author calculations from Family Resources Survey and MIS database. Reported incomes for bottom four percentiles considered unreliable (Hirsch et al. 2016)

tax credit entitlements (Hirsch 2017; Grover 2016). The risk here is that this could help bring some households across the low income line, but at the same time greatly increase depth of low income among work-poor groups. The low income indicator will help track the aggregate effect of such policies.

The UK results presented in Figs. 4 and 5 also help identify which sub-groups of the population most need help to improve modest incomes, and on the other hand where the risk of very low income is greatest. Children and people living in social housing have a very high incidence of income below the MIS line, but working age adults and especially private tenants have a relatively high risk of being on such low income that they can afford less than half of what they need. This reflects the fact that adults without children in the UK on low incomes are particularly likely to be in expensive privately rented accommodation, and have had less adequate support from the benefits and tax credits system than families with children (Padley and Hirsch 2017, p. 9).

7 Conclusion

This paper has proposed a new ‘low income gap’ indicator, and demonstrated its contribution in summarising the overall progress that a country is making to reduce low income. It has used the example of the United Kingdom to show that it produces information that usefully complements indicators of relative poverty.

The indicator uses a benchmark derived from regularly updated research into what members of the public see as a social minimum living standard. Like relative poverty thresholds, this changes with contemporary norms, but rather than fluctuating automatically with median income, changes are linked to tangible changes in society, as established by consultation with members of the public. Another important difference is that research on a minimum budget shows that 60% of median income is too little to afford all the things that members of the public consider are required to meet material needs and participate in society. This corresponds with growing public interest in the fortunes of those on incomes above the poverty line but on still-modest incomes. The higher threshold gives a basis for taking those households’ incomes into account when tracking the impact of public policy on relieving low income. At the same time, by taking account of average depth below this benchmark, it avoids labelling as successful policies that help selected groups to cross the line if other much poorer groups face a widening income shortfall.

The UK case presented here has illustrated how this indicator can be relevant for policy debates. One way is to show the overall trend in low income, which has moved in different directions from relative poverty over short time periods as fluctuations in median income affect the relative poverty line.

It is also clear from this analysis of the UK that the distribution of income below a low income threshold differs in significant ways across groups and across time. For example, in some cases low income is comparatively more concentrated among those with modest incomes just below the threshold, whereas in others, the problem of very low income is more acute. Such differences help identify where policy efforts are most needed, with respect to different groups: low income is more ‘broad and shallow’ for children and more ‘narrow and deep’ for working age adults, suggesting policies that are more generalised for the former and more targeted for the latter. This finding could not have been derived in the same way from a standard relative poverty indicator, which does not take account of the large number of children who live in families above the poverty line but below the minimum income threshold.

The calculations for the UK made in this paper thus illustrate how the proposed indicator can capture more information about the income distribution than simply counting how many people fall below a poverty line. Building on the application of the MIS methodology in other countries, this low income gap indicator could potentially be applied elsewhere. It is therefore a helpful addition to the indicators currently used to assess the adequacy of a country’s household incomes, and the success of policy in improving them.

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