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Approaching expenditure poverty in the UK in a new way

by

Sofiya Mateeva Stoyanova

A dissertation submitted to the University of Bristol in accordance with the requirements for award of the degree of *Master of Philosophy* in the Faculty of Social Sciences and Law.

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Abstract

Previous empirical literature has found that expenditure poverty rates among retired households are higher than those among non-retired households. Our analysis suggests that this finding is misleading as it is generally based on expenditure poverty measures that do not take into account differences in expenditure patterns between retired and non-retired population. We argue that expenditure measures that consider the difference in expenditure basket of these two population groups are more relevant and informative than standard expenditure measures. More specifically, we propose a measure of expenditure poverty which excludes housing and work-related costs, as these are typically much higher among non-retired households. We add an extra dimension to our analysis by briefly considering the relationship between income/expenditure and well-being.

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Author's declaration

I declare that the work in this dissertation was carried out in accordance with the requirements of the University's *Regulations and Code of Practice for Research Degree Programmes* and that it has not been submitted for any other academic award. Except where indicated by specific reference in the text, the work is the candidate's own work. Work done in collaboration with, or with the assistance of, others, is indicated as such. Any views expressed in the dissertation are those of the author.

SIGNED: DATE:.....

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1. Introduction

Poverty is a topic at the top of the policy agenda across the world and extensive research has been devoted to studying poverty and trying to quantify it. Poverty has generally been measured using income, however, economists have long argued that consumption may be a better indicator of life-time utility than income is, given that individuals are able to smooth consumption by drawing on savings or borrowing, when faced with temporary periods of low income (Cutler and Katz, 1992; Slesnick 1993). It is important to note that consumption is not necessarily the same as expenditure, as measured by most household expenditure surveys. Aguiar and Hurst (2005) explain that actual “*consumption is the output of home production which uses as inputs both market expenditure and time*” (Aguiar & Hurst, 2005: p220). In that sense, if one considers the role of home production, a fall in market expenditure for unemployed or retired households may not necessarily translate into lower consumption levels. As most household expenditure surveys do not measure consumption directly, expenditure is often used as a proxy for consumption. While we acknowledge the distinction between the two, the data source used for this analysis only measures household expenditure and this is what we use to approximate consumption.

Our paper argues that existing expenditure poverty measures that do not take into account differences in expenditure patterns between retired and non-retired households, fail to adequately capture poverty experience of pensioners¹. Our contribution to the poverty literature is to show that different expenditure baskets lead to significantly different poverty rates among retired and non-retired households. Our research suggests that in order to make a meaningful comparison of poverty rates between retired and non-retired households, expenditure measures should be adjusted to exclude not only housing costs, as already done by some researchers, but also expenditure on work-related items. We find that once these adjustments are made, poverty rates between retired and non-retired households are closer together than what ‘after housing costs’ (AHC) expenditure poverty measures show. Our second contribution is to investigate whether income or expenditure is a better predictor of well-being, as measured by life-satisfaction score. We find that expenditure is a slightly better predictor of life satisfaction than income, although the correlation between the two is not particularly strong. To our knowledge, we are the first ones to look at the link between expenditure poverty and personal well-being using data from the Living Costs and Food Survey (LCFS).

Existing work, such as Brewer et al. (2006) and Leicester et al. (2009), suggests that expenditure poverty among retired population is higher than income poverty among the same group, as well as higher than poverty among non-retired people, on both income and expenditure measures. There are generally two reasons why expenditure poverty among pensioner households may be higher than that among working-age households: there may indeed be more retired than non-retired households that are

¹ Throughout this analysis the terms retirees, pensioners and retired households are used interchangeably.

poor, or these two population groups may have different compositions of expenditure, resulting in artificially higher poverty rates for the elderly. A ‘true’ measure of expenditure poverty should for example reflect that some retired households may have lower housing expenditure not because they are experiencing poverty, but because they own their home outright. Our analysis shows that retired households are an interesting group to look at as they exhibit different spending patterns to the rest of the population.

We argue and show that relatively low levels of expenditure among retired households can mainly be attributed to their spending habits and needs which are different, and often lower, than the needs of working-age households. This argument is supported by other studies, amongst which Hurd and Rohwedder (2003), who suggest that after retirement, individuals have more leisure time, which can be used to either purchase goods and services more efficiently or to substitute home-produced goods for purchased ones. In addition, Banks et al (1998) show that the decline in expenditure may be partly attributed to lack of labour market participation among retired households, but they also find that such expenses are not large enough to explain the entire drop in expenditure observed at retirement. Other possible explanations relate to *“heightened fears among retired households of unexpected injury or illness, or a desire to maintain wealth levels to provide an improved inheritance to relatives”* (Stoyanova and Tonkin, 2018: p7).

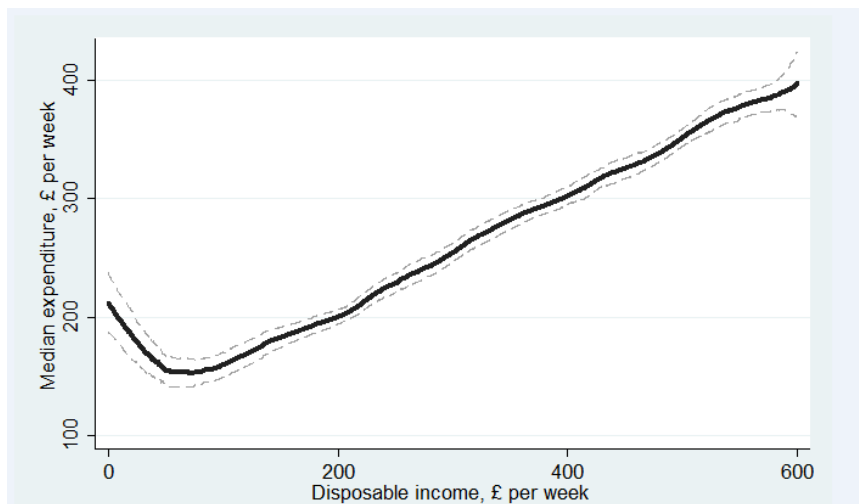
The distinction between consumption and expenditure becomes especially relevant when considering retired households. Aguiar and Hurst (2005) study the link between expenditure on food, time spent on food production and actual food consumption, using the Continuing Survey of Food Intake of Individuals (in the US). They disentangle empirically changes in actual consumption from changes in expenditure and show that the drastic decline in expenditure at retirement does not result in fall in consumption. The authors find that expenditure falls by 17% at retirement, and this is matched with an increase in the time spent on home food production by 53%. Actual food consumption of retired individuals, however, is not affected by the fall in expenditure and it appears to be identical to that of non-retired individuals with similar demographic characteristics. These results suggest that it may not always be appropriate to use market expenditure as a proxy for actual consumption. The Living Costs and Food Survey (LCFS), which we use for our analysis, only provides information on expenditure. By excluding housing and work-related costs from our proposed expenditure measure, we aim to bring it closer to a consumption measure. Nonetheless, by doing this we are still only able to approximate actual consumption and the reader should therefore bear in mind the limitations of our expenditure measure.

To emphasise the difference in expenditure levels between retired and non-retired households, *Figure 1.1* presents non-parametrically the relationship between median household expenditure, given income, for both of these population groups. *Figure 1.2a* shows that for non-retired households with income of below £70, median household expenditure is much higher than income is. For incomes over £70,

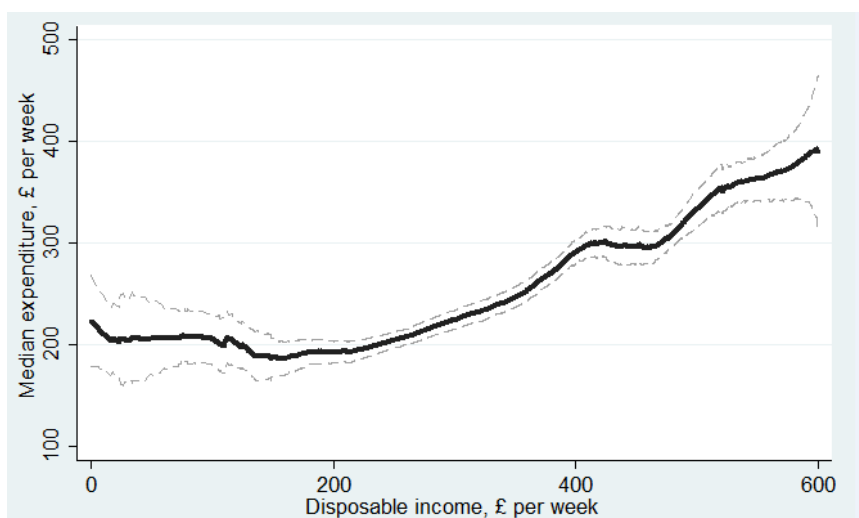
median expenditure is monotonically increasing in income. This relationship maps out graphically as a ‘tick’. The presence of a tick has been previously found in other studies, such as Brewer et al. (2017), who show that of under-reporting of income and consumption smoothing, the former plays a major role in explaining this pattern. The authors confirm that the tick is a pervasive feature of the data and is present for all population groups considered (albeit less obvious for pensioner households). *Figure 1.1b* confirms that the story is a bit different once retired households are considered. For this population group, median expenditure remains relatively flat for income levels of up to £200. After this point, median expenditure increases with income but at a slower rate than it does for non-retired households.

Figure 1.1. Median household expenditure by household disposable income, 2013-17

a) Non-retired households



a) Retired households



Notes: The solid lines represent smoothed conditional medians and are generated by performing locally-weighted median regressions. Values on axes are equalised using the modified-OECD ‘companion’ scale². Dashed lines represent 95% confidence intervals. Both income and expenditure are after housing costs (AHC).

This result confirms that retired and non-retired households exhibit very different expenditure levels toward the lower end of the income distribution. It is important to understand and consider these differences as it is the bottom of the income distribution that we are most concerned about, when trying to measure poverty. Our analysis puts an emphasis on retired households’ experience of poverty and shows the importance of defining expenditure in a way that adequately captures the differences in expenditure patterns between retired and non-retired households and thereby better reflects the true poverty experience of households.

It is important to note that a growing amount of research has looked into the expenditure patterns of retired households, showing considerable variation of expenditure within this population group, in terms of age, income, gender, family type, and other personal characteristics (Hurst, 2008; Rose and Nieswiadomy, 1994). While we acknowledge, show and briefly discuss expenditure differences within retired households in our results section, a detailed analysis of this is outside the scope of this paper.

Poverty has previously been linked to the concept of well-being, mainly in the context of income, which has been traditionally used to measure poverty. We would expect expenditure-based poverty to be linked to personal well-being as well. We acknowledge the importance of subjective measures of well-being and contribute to the academic literature by studying the link between expenditure poverty and personal well-being, as measured through a question on life satisfaction in LCFS. Our aim is to show whether this link is stronger for expenditure or for income, and if there are any differences in that relationship between retired and non-retired individuals.

Previous studies on well-being, such as Bavier (2007) have looked at the relationship between income and expenditure on one side and well-being on another. The results of Bavier’s analysis suggest that income correlates more strongly with hardships than expenditure does. Meyer and Sullivan (2011), however, criticise Bavier’s unconventional sample and the methods he uses to evaluate the quality of income versus expenditure data. Meyer and Sullivan (2011) examine how closely related income and expenditure are to various predictors of well-being, such as ill health and disability, amongst others. They find some evidence that in all cases low expenditure is a better predictor of hardship than income is. The authors also investigate the same relationship between income or consumption and well-being indicators for families of lone mothers, families with a household reference person aged 65 and over, and families where the head of household is disabled. Their results suggest that expenditure is again a clearer indicator of worse outcomes than income.

² More information about this equalisation scale is provided in Annex C.

In a related study, Charles et al. (2006) use a sample of individuals aged 53 and over to test the relationship between income or expenditure and well-being measures. They find that income is more closely correlated with well-being than expenditure is, when the full sample is considered. However, once they focus on the bottom income decile, they find a significant relationship between expenditure and well-being, as measured by physical health and wealth.

Although this paper touches only lightly on the link between expenditure poverty and personal well-being, as measured by life satisfaction scores, and provides evidence for a simple correlation rather a causal link between the two, we believe our results are still informative and contribute to our understanding of expenditure poverty and how it could potentially affect people.

The rest of the paper is organised as follows. Section 2 attempts to set out a conceptual framework for poverty and briefly considers the debate on income versus expenditure measures. The following section outlines the data used in the analysis, discusses some of the data limitations and defines the income and expenditure poverty measures used. Section four presents the results of some empirical comparisons between retired and non-retired households. Section five explores the relationship between income/expenditure poverty and life satisfaction and the final section concludes.

2. Conceptual framework of poverty

2.1 What is poverty and why measure it?

Prior to discussing the approach we take to measuring poverty, it is worth thinking about what poverty actually is, why we care about it and why we want to measure it. These are important questions to address, and yet, ones that are often overlooked.

Poverty is a theoretically challenging concept to work with, and one that has long been debated in the literature. The way poverty is defined often depends on the political and social context it is being used within. Generally, someone is said to be in poverty if they do not possess the resources necessary to achieve basic needs or an acceptable standard of living. What is considered 'basic' or 'acceptable' is in itself often a subject of debate and is ultimately determined by the interaction of complex social processes. A lot of poverty research has focused on describing the state of being poor in terms of a lack of attributes, such as income, health, education, etc. However, it can be argued that these attributes are outcomes of social processes and as such, they need to be considered and understood within the framework of social institutions (Suich, 2012). In that sense, poverty is directly related to the resources that people have access to and under what conditions. Government structures, political pressures and other systems and processes, govern social interactions and these in turn influence, to a great extent, the resources and opportunities people have, as well as their ability to make choices (Suich, 2012).

It can be argued that poverty is primarily an ethical concept, and therefore, it may be most appropriate to look for a definition of poverty in a social justice framework. From a social justice and a fairness perspective, one could pose the questions: Is the condition of poverty fair? Is poverty simply the result of bad luck? In this context, poverty is closely linked to inequality. But how is it that we define equality; equality of what? From a philosophical point of view, one can consider three dimensions of equality – outcome (e.g. number of calories consumed), freedom of choice (e.g. ability to decide how many calories to consume), and resources that determine the ability to choose (e.g. disposable income) (Asselin, Louis-Marie, 2009). Although it is useful to consider poverty in the context of inequality, the two should not be conflated.

Poverty can be defined both objectively and subjectively. Objective measures try to capture the observable aspects of poverty, such as material deprivation, through quantitative indicators. Subjective measures, instead, relate to people's own judgement and perception of their circumstances. Traditionally, the focus has been on the former set of measures, as they are easier to quantify and are generally considered more reliable. However, to better understand the poverty experience of people, researchers need to ideally consider both objective and subjective measures. In the last part of this analysis, we briefly investigate how poverty relates to personal well-being.

When measuring material well-being, it is important to consider what a poverty measure should measure. Are we interested in the resources households have available to satisfy their needs or is their actual consumption a better indicator of how well they fare in society? Should non-monetary aspects, such as nutrition, health, literacy or even lack of social relations be reflected in a poverty measure? These are important questions to which there is not necessarily a straightforward or right answer.

There are generally three choices that a researcher needs to make when analysing poverty: what definition of poverty is to be used in the analysis; what aspects of peoples' lives determine whether they are in poverty or not, according to the definition chosen (e.g. disposable income, consumption, level of well-being); and what is the threshold that determines who is in poverty and who isn't (O'Leary, 2019). For the purpose of this analysis, we will consider people to be in poverty if they do not have enough resources to live comfortably (this requires calories intake, shelter, health care, etc.) or to be part of society (enjoy social activities, recreation, etc.). Most of these elements can be directly measured through household consumption (and indirectly measured through household expenditure) and this is the motivation behind focusing on expenditure-based poverty measure in this analysis.

Once these first two choices are made, we then need to decide on a 'poverty line' or a threshold. In that sense, poverty can be considered as an absolute or a relative concept. Absolute poverty considers the status of an individual or a household independently of the status of other individuals or households. Poverty is present when people cannot meet the minimum standard of living required for survival,

which is currently defined as \$1.90 a day.³ In contrast, relative poverty considers the circumstances of people compared to the rest of the population. Relative poverty can change spatially and temporally which makes drawing comparisons between different locations/countries impractical, as relative poverty will depend on the level of development of countries (Suich, 2012). In this analysis, we employ the official poverty line used in the UK which is 60% of median household disposable income. Anyone below this threshold is considered to be in poverty.

Why is it important to measure poverty? A strong justification for why we want to be able to quantify poverty is provided by Ravallion (1998), who claims that *“a credible measure of poverty can be a powerful instrument for focusing the attention of policy makers on the living conditions of the poor”* (Ravallion, 1998: p.1). Or as the World Bank put it *“it is easy to ignore the poor if they are statistically invisible”* (World Bank, 2008: p.10). Eradicating extreme poverty and hunger was number one goal of the United Nations Millennium Development Goals. The post-2015 development agenda, including the Sustainable Development Goals (SDGs), puts poverty at its heart once again, by urging both developed and developing countries to work as a global partnership to end poverty in all its forms, everywhere. A credible measure of poverty is therefore a valuable tool for monitoring the progress towards this target and for evaluating and improving the design of other policies and programmes aimed at tackling poverty.

A further reason for measuring poverty relates to the effective targeting of poverty reduction policies. To be able to help the poor one needs to know who the poor are. This is where it becomes important to examine poverty patterns and learn how poverty varies by geography, as well as personal or household characteristics, such as age, gender, education level, socio-economic status. Institutions that try to tackle poverty have only limited resources and it is therefore essential to know how best to target these. Measuring poverty also enables us to judge the success of such institutions, and of governments, in pursuing poverty reduction strategies.

Many studies, among which Bourguignon and Chakravarty (2003), have highlighted the importance of defining poverty as a multidimensional concept. While we acknowledge the relevance of all the various dimensions of poverty, it is not within the aims of our research to take into account the multidimensional nature of poverty.

2.2 Income versus expenditure poverty

In this paper, we skip through the debate on the appropriateness of using income versus expenditure to construct poverty measures. This topic, however, merits a brief discussion. A number of studies have shown how the choice between income and expenditure can influence the outcome one is trying to measure, and it is therefore important to acknowledge the differences between the two approaches.

³ World Bank (2015)

There are a number of reasons why research has focused on measuring material living standards using household income as a proxy. Firstly, income is considered to be a good indicator of the resources that individuals have available to spend, save or invest. In addition, income can be directly influenced by government intervention, through the tax and benefit system, and therefore income measures often guide policy (Brewer et al., 2017; Stoyanova and Tonkin, 2018). In the UK, the primary source of poverty statistics, the Department for Work and Pensions' (DWP) Households Below Average Income (HBAI) statistics, defines poverty thresholds using household income alone.

From a conceptual point of view, consumption is arguably *“a better measure of achieved living standards as it is through the consumption of goods and services that households satisfy their needs and wants over time”* (Stoyanova and Tonkin, 2018: p1). As discussed earlier, poverty is about the ability of people to participate in society, for example through attending social and cultural events and activities. These aspects are arguably better captured by consumption expenditure than by income measures which is a further reason why we choose to focus mainly on expenditure poverty measures in this analysis. However, it is important to recognise that expenditure, which we use to measure consumption, is not necessarily the same as consumption. Attanasio and Pistaferri (2016) provide some reasons why the two concepts may diverge. Consumer surveys generally measure expenditure over a short period of time and therefore cannot adequately capture consumption of durable goods which tend to provide benefits for an extended period of time. This has important implications for studies on material living standards, since households who own valuable assets may have lower expenditure but not necessarily lower consumption. This is especially true for housing, which is one of the most valuable assets held, and may lead to expenditure-based poverty rates for households who own their home outright to be exaggerated.

It has been argued that consumption tends to be more accurately measured than income towards the lower tail of the distribution (Brewer et al. 2017, Meyer and Sullivan, 2013). Underreporting of income and consumption is a valid concern in any study on measuring poverty and living standards and it is therefore important to consider it. Meyer and Sullivan (2013) present evidence of significant underreporting of income in the United States, the extent of which has increased over time. This seems especially relevant for those with few resources whose income is often far below their consumption (Meyer and Sullivan, 2011). In the UK, Brewer et al. (2017) show that at the lower tail of the income distribution, consumption is measured with less error and is more closely aligned with alternative measures of material well-being than income⁴. Possible reasons for the more prominent underreporting of income include more sensitive nature of income-related questions and the tendency of people on low incomes to have multiple income sources, which naturally introduces more measurement error. When poverty rates are concerned, consumption appears to be a better measure than income since it is more accurately reported towards the bottom of the income distribution. For a more detailed discussion on

⁴ Other measures of living standards considered by the authors include owning a car and the size of dwelling.

the advantages and limitation of using income versus consumption when measuring poverty, please refer to Meyer and Sullivan (2003, 2011), Attanasion et al. (2006).

More formally, the life-cycle model provides a theoretical motivation for using expenditure over income when measuring poverty. Income tends to be more volatile, raising and falling in the course of one's lifetime, whereas consumption generally remains stable. In its basic form, the life-cycle hypothesis suggests that individuals make decisions to achieve a stable lifestyle using all information they have available. Research suggests that while the life-cycle hypothesis may not hold in practice, households in developed countries appear to smooth out a substantial seasonal fluctuation in their income. Therefore, expenditure data that are collected over a shorter period of time, as is normally the case with most household surveys, are likely to provide a better indication of one's general level of welfare.⁵

It is not the aim of this analysis to recommend one over the other type of measures. Instead, we see these as being complementary and we recommend they are used in parallel, as both types of measures provide valuable information and using them in isolation may lead to important aspects of poverty not being captured. As noted earlier, we are not able to observe actual consumption, as it is not captured in the LCFS, and we are therefore using expenditure as a proxy for consumption, throughout our analysis.

3. Data sources and definitions

3.1 Income and expenditure data

An expenditure survey has been carried out in the UK annually since 1957. Up until 2001, the Family Expenditure Survey (FES) and the National Food Survey (NFS) provided detailed information on household expenditure patterns. In 2001, the two surveys were merged together to create the Expenditure and Food Survey (EFS), which was replaced by the Living Costs and Food Survey (LCFS) in 2008. Throughout this analysis, we make use of LCFS data which contain information on household and personal incomes, as well as spending on various goods and services. The survey is carried out using face-to-face interviews and a two-week expenditure diary in which individuals aged 16 and over record expenditure on non-durable goods, including alcohol and tobacco. Participant also provide information on less frequently purchased goods. Since 1993/94 LCFS has been collected on a financial year basis. The sample size that the survey achieves is 7,000 households although this figure has declined to about 5,000 in the last few years.⁶ Measures, such as proxy and partial interviews are set in place to minimise non-response and survey weights are produced to compensate for it (Living Cost and Food Survey Technical Report, 2015).

⁵ Chapter 2. Measuring poverty (2005) – World Bank Group

⁶ For a summary of LCFS response rates since 2000 see Annex A.

In addition to this declining trend in coverage, there are some concerns that LCFS data suffer from significant under-reporting. Since this is the only survey in the UK that collects comprehensive and nationally-representative data on household expenditure, it is particularly difficult to assess the issue of under-reporting. Leicester and Oldfield (2009) analyse a panel of commercial expenditure data on groceries (Kantar Worldpanel) collected using scanner technology and find that, in comparison with LCFS data, the Kantar dataset shows much lower levels of expenditure across various population groups, even after accounting for demographic characteristics. A different sense check that can be performed is to compare survey expenditure to economy-wide expenditure totals, as reported in the UK national accounts. Tonkin et al. (2019) show LCFS coverage rates for income and consumption expenditure in the UK in 2017, expressed as a percentage of national accounts totals. The authors find considerable variation across components, “*ranging from 23% to 101% for income, and 38% to 100% for consumption expenditure*” (Tonkin et al. 2019: p4). While there are many reasons why this may be the case, it is generally considered that these differences can be mainly attributed to low survey coverage combined with under-reporting on one hand, and conceptual difference between micro and macro data sources on the other.⁷

The Family Resource Survey (FRS) provides a much larger sample size of 17,000 households and is a very good source on income data, however, it does not provide information on expenditure. LCFS is the only survey in the UK which contains information on both income and expenditure and that is the main reason why we use it. For the purpose of this analysis, we use LCFS data from 2013 to 2017 which we combine in one large dataset.

3.2 Income and expenditure definitions

To define income, our starting point is disposable household income, as described in the “Effects of taxes and benefits on UK household income” publication by the ONS.⁸ Disposable income reflects the amount households have available to spend once direct taxes and benefits have been accounted for. This measure does not consider housing costs.

In terms of expenditure, we follow Stoyanova and Tonkin (2018) and include the following items in our expenditure measure: frequently purchased items, such as food, drink, household consumables, as well as less frequently incurred expenses, like household furnishing and appliances⁹. As previously discussed, household expenditure surveys can capture expenditure but not consumption. This distinction becomes especially important when considering poverty measure because consumption and expenditure can be two very different concepts. Consider a couple who own their home outright and another couple who are renting a very similar property. Although the housing costs of the home-owners are likely to be much lower, the two couples are probably deriving a very similar consumption value

⁷ For more details see Atkinson Commission report (World Bank, 2017).

⁸ For more details see ONS (2017): Effects of taxes and benefits on UK household income.

⁹ We do not impute consumption flows from ownership of durables, like housing or cars.

from their homes. This example demonstrates that households who own their home outright, will have relatively low levels of expenditure compared to those who rent or own their home with a mortgage. An expenditure-based poverty measure that includes housing costs may therefore incorrectly identify owner-occupiers as experiencing poverty due to their relatively low spending on housing. To avoid this issue, we subtract housing costs (rent, mortgage payments, water rates, council tax, etc.) from our expenditure measure, bringing it to an AHC basis.¹⁰

In parts of this paper, we directly compare income- and expenditure-based poverty measures and it is therefore important that our measures of income and expenditure are as consistent as possible. To ensure consistency, we deduct housing costs from our income measure as well.¹¹ In addition, both our income and expenditure measures are equivalised to reflect the number of people in each household. This is done using the OECD-modified ‘companion’ scale developed for DWP’s HBAI series.¹²

For the purpose of this analysis, we use the retired individual definition as outlined in the Effects of taxes and benefits on UK household income: “A retired person is defined as anyone who describes themselves (in the Living Costs & Food survey) as ‘retired’ or anyone over minimum State Pension age describing themselves as ‘unoccupied’ or ‘sick or injured but not intending to seek work’” (ONS, 2015). Following from that, we define a household to be retired if the combined income of retired individuals within the household “amounts to at least half the total gross income of the household” (ONS, 2015). This does mean that there may be households who are classed as retired where not all household members are actually be retired. All estimates presented in this analysis are weighted using a LCFS household weight.¹³

3.3 Poverty line definition

In defining poverty, we cut across the debate on whether an absolute or a relative measure is more appropriate, and we adopt the standard UK and European definition of relative poverty. We classify a household as being at risk of poverty if it has an equivalised disposable income or expenditure of less than 60% of the median equivalised household disposable income or expenditure.¹⁴ We use this definition while acknowledging that it merely provides information about the number of households being at risk of poverty rather than helps us understand how poor the poor are or how long they have been in poverty. Despite these limitations, adopting a relative poverty line, which we use for both income and expenditure poverty measures, allows us to make a meaningful comparison between the two where relevant.

¹⁰ For more details on how the AHC measures of income and expenditure are derived, please see Annex B.

¹¹ Negative incomes have been set to 0. While we acknowledge that by doing this we lose some information, this does not affect median values or poverty rates presented in this analysis.

¹² Information on the OECD-modified ‘companion’ scaled is provided in Annex C

¹³ For a detailed description of the weighting methodology, see the LCFS technical report (2017)

¹⁴ Although being at risk of poverty does not necessarily imply being poor, we use the two terms interchangeably throughout this analysis.

3.4 Well-being data

To investigate the link between personal well-being and income/expenditure, we utilise a well-being question asked in LCFS: ‘Overall, how satisfied are you with your life nowadays?’, measured on a scale from zero to ten, with zero being ‘not at all’ and ten being ‘completely’ satisfied. It should be noted that as well-being is measured at a person level, the final part of this paper considers the individual as a unit of analysis and a person weight is applied to all estimates.¹⁵ Retired individuals are defined as above and all individuals are given the expenditure of the household they belong to.

4. Empirical results – comparison between retired and non-retired households

Our empirical strategy is to use econometric techniques and summary statistics to investigate the differences in expenditure patterns between retired and non-retired households, as well as the difference in their poverty experience. In doing this, we try to answer the question of whether general expenditure poverty measures, that do not reflect differences in expenditure patterns, are informative or in fact present a misleading picture on poverty. To do this, we first need to understand how these two population groups differ. *Table 4.1* presents characteristics of retired and non-retired households facing income and expenditure poverty.

Table 4.1. Characteristics of households in income and expenditure poverty, 2013-17

	Income poor	Expenditure poor
<hr/>		
<i><u>Retired households</u></i>		
Median income (£ per week)	£214	£280
Median expenditure (£ per week)	£200	£142
Share of population in poverty	25%	29%
<i><u>Non-retired households</u></i>		
Median income (£ per week)	£173	£242
Median expenditure (£ per week)	£197	£145
Share of population in poverty	22%	19%

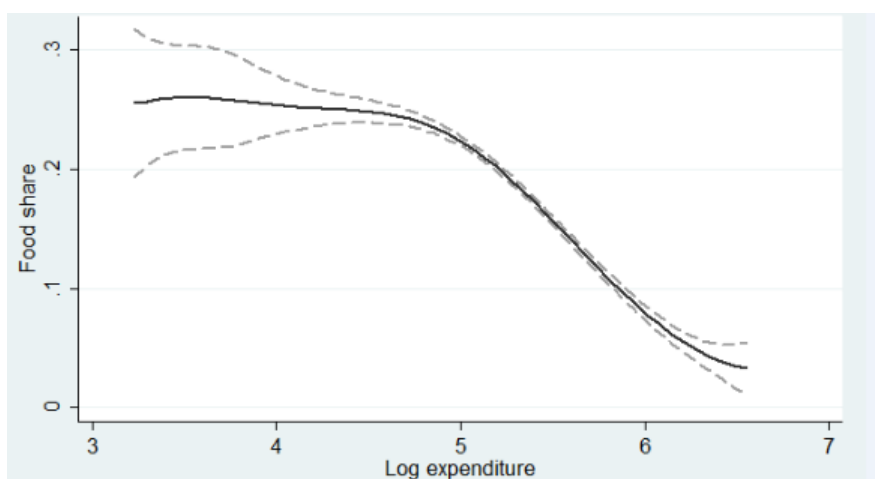
¹⁵ The well-being questions in LCFS are not asked to proxies, so people who have not answered the questions are removed from the sample and the remaining individuals are weighted up to the total population.

While the shares of retired and non-retired households in income poverty and both income and expenditure poverty are relatively similar, retired households seem to experience much higher rates of expenditure poverty than non-retired households do, 29% and 19% respectively. This result suggests that looking at income-based poverty measures in isolation may not truly reflect retired households' experience of poverty.

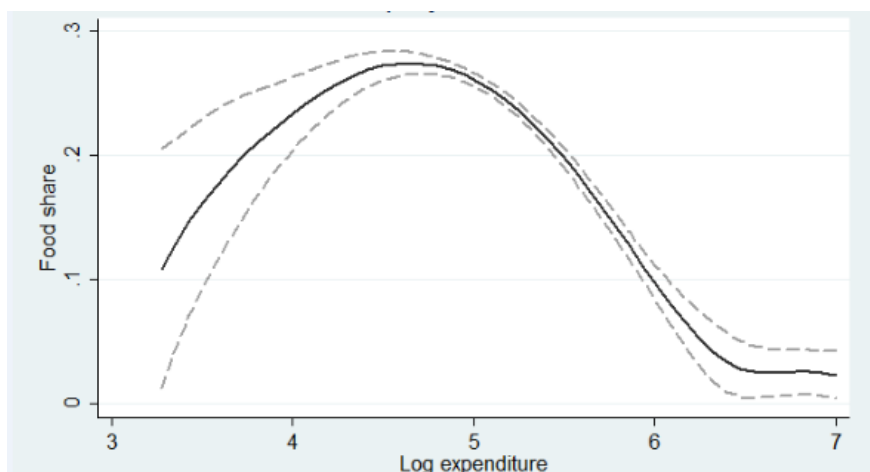
Previous studies have found that food expenditure drops at retirement (Aguilar and Hurst, 2005; Aguila et al., 2008). Food is an important expenditure category to consider in the context of poverty analysis as households in expenditure poverty tend to spend the largest proportion of their expenditure on food (Stoyanova and Tonkin, 2018). Analysis of expenditure data from household surveys generally shows that as total expenditure grows, the share of food expenditure goes down. This is known as the Engel's law, which shows that as income rises, expenditure on food rises too, but since expenditure on other things increases even more, the share of food expenditure declines. To describe how food expenditure changes as total expenditure increases, we take a non-parametric approach and present food Engel curves for retired and non-retired households who are in expenditure poverty. *Figure 4.1* broadly confirms this pattern for non-retired households – food share is relatively flat for very low levels of expenditure and then decreasing in overall expenditure.

Figure 4.1. Food Engel curves, 2013-17

a. Non-retired households



b. Retired households



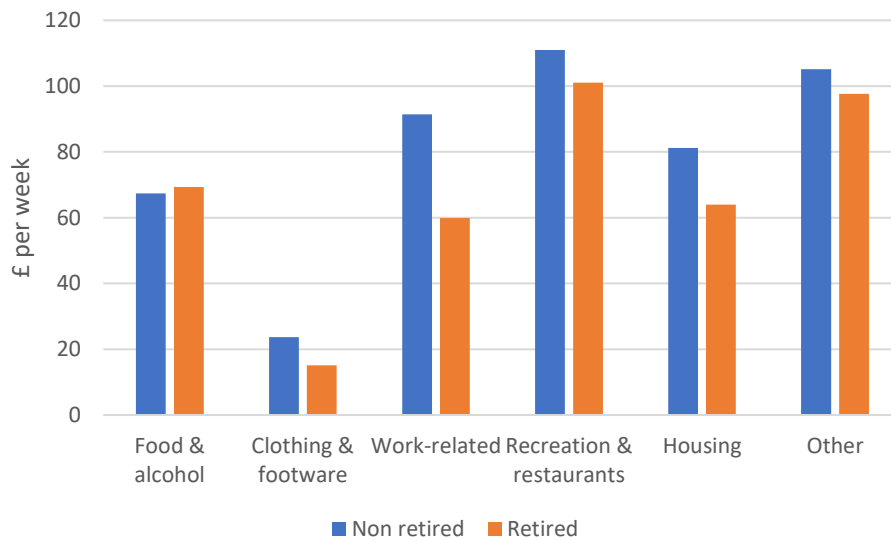
Notes: Engel curves were obtained using a non-parametric local polynomial smoother. Dashed lines represent 95% confidence intervals.

For retired households, however, the story looks different. For lower levels of expenditure, the share of food expenditure is increasing in total expenditure, but as overall expenditure increases, the food share of retired households falls sharply. This may indicate that there are some very poor retired households at the bottom of the expenditure distribution.

Our empirical investigation continues with looking at the composition of the expenditure basket for retired and non-retired households. Figure 4.2 shows average weekly expenditure by different expenditure categories for both population groups. The biggest difference in expenditure where non-retired households spend significantly lower amounts, on average, than retired households do is in work-related costs. Our measure of work costs includes costs related to transport, clothing and food consumed in canteens. This finding is not surprising, and it can be attributed to a lack of labour market participation among retired people.

In terms of housing costs, the expenditure figures below support the argument we presented earlier in the analysis, that retired households are more likely to own their home outright, which artificially reduces their overall housing costs. By defining expenditure on an AHC basis, we avoid, at least to a degree, the problem of wrongly identifying pensioners as being expenditure poor due to their reduced spending on housing. However, given the observations above, it seems appropriate to exclude work-related costs from our expenditure measure as well.

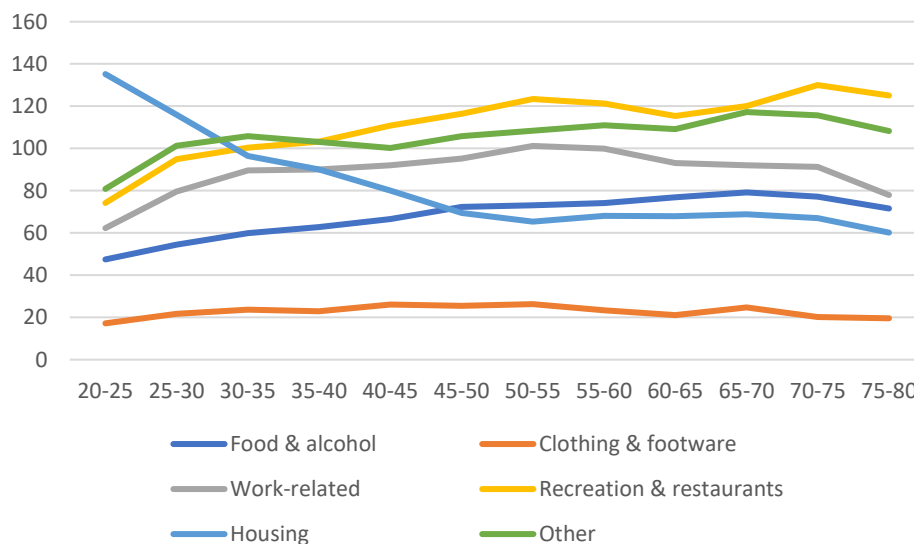
Figure 4.2. Average expenditure by retirement status, 2013-17



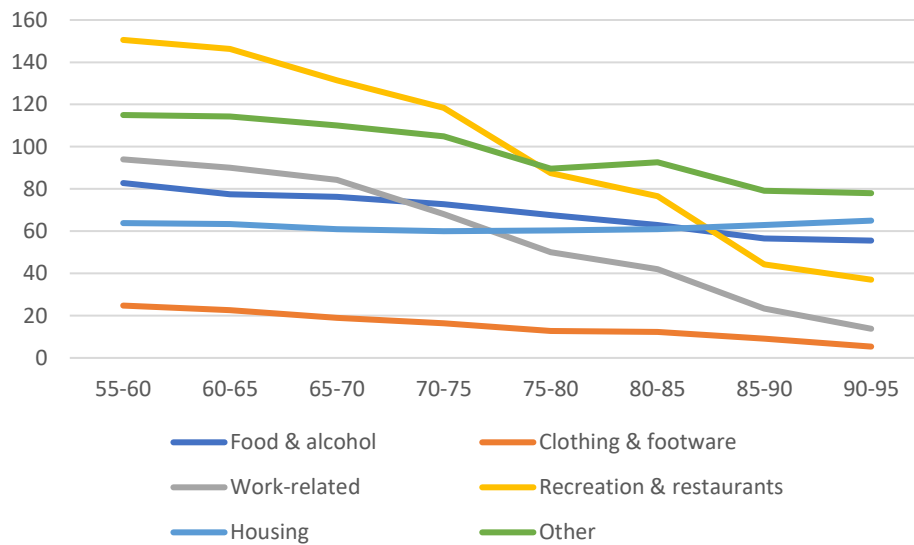
To delve deeper into the expenditure pattern of retired vs non-retired households and to investigate where specifically the differences highlighted above arise, we look at average weekly expenditure by age band and retirement status. Figure 4.3 below presents the results. Average housing costs are considerably higher for non-retired households of age groups 20-25 to 40-45 than for retired households, reflecting the fact that younger households are indeed less likely to own their home outright.

Figure 4.3. Average expenditure by age group and retirement status, 2013-17

a. Non-retired households



b. Retired households



Notes: 'Other' category includes expenditure on health, communication, education, furnishing and miscellaneous.

For non-retired households, work-related costs seem to peak around the age of 50-55 (average of £100) and remain quite high until the age of 70-75 (average of £90). For retired households, work-related expenditure also appears to be highest around the age of 50-55 (average of £92) but falls dramatically thereafter. This finding supports the argument that work-related spending drops markedly around retirement and it is therefore appropriate to exclude it from our expenditure measure.

We next turn our attention to investigating how poverty rates differ by age, conditional on retirement status. Table 4.2 below shows how expenditure poverty rates for retired and non-retired households differ across the three poverty measures we consider – AHC expenditure poverty (Exp1), AHC expenditure poverty excluding work-related costs (Exp2), AHC income poverty. Our proposed expenditure measure leads to lower poverty rates than the standard AHC expenditure measure, for all retired age groups. This result is reversed for non-retired households, with higher poverty rates using our proposed expenditure measure than the standard one.

Results in Table 4.2 suggest that for retired households, poverty rates are increasing in age, up to age 75-80 when they start to drop, for both expenditure measures presented. Comparing expenditure poverty rates, Exp (2), between retired and non-retired households at age 60-65 reveals that these are nearly identical for both retired (8%) and non-retired (9%) households.

Table 4.2. Poverty rates (%) based on various measures, by age group 2013-17

Age band	Retired households			Non-retired households		
	Exp (1)	Exp (2)	Inc	Exp (1)	Exp (2)	Inc
15-20				1	2	1
20-25				8	10	7
20-30				11	12	9
30-35				11	13	9
35-40				11	15	9
40-45				11	14	10
45-50				12	13	11
50-55				12	13	10
55-60				10	12	9
60-65	10	8	12	7	9	6
65-70	16	14	15			
70-75	19	16	18			
75-80	23	19	17			
80-85	21	17	14			
85-90	18	12	10			
90+	6	6	4			

Income poverty rates are considerably higher for retired households than for non-retired ones. Using our proposed expenditure measure seems to bring expenditure and income poverty for retired households somewhat closer together.

Poverty rates vary considerably by age group, especially among retired households. While we acknowledge that differences within retired and non-retired households are important and need to be investigated, our main focus in this analysis is on differences between these two population groups more generally. We believe that presenting an expenditure poverty measures that considers differences in expenditure patterns between retired and non-retired households is a step in the right direction.

Future research may also consider expenditure difference within these groups, but this is outside the scope of our analysis.

5. Well-being and income/expenditure poverty

We add a final dimension to our analysis by considering the relationship between income and our new measure of expenditure on one side and personal well-being on the other, for both retired and non-retired individuals. Our aim is to show whether this relationship is stronger for expenditure or for income, and if there are any differences in that relationship between retired and non-retired individuals.

We follow the empirical strategy of Meyer and Sullivan (2003) to examine whether expenditure or income is more closely correlated with well-being, as measured by life satisfaction scores from LCFS. We calculate whether people at the bottom of the expenditure distribution are more different from other individuals than those in the lowest income decile are from other individuals. We also investigate if that difference is larger for retired than non-retired individuals.

Let $S(\text{INC}_{0-10})$ and $S(\text{EXP}_{0-10})$ denote life satisfaction of people in the lowest income and expenditure decile, respectively. $S(\text{INC}_{10-100})$ and $S(\text{EXP}_{10-100})$ is then life satisfaction score for the rest of individuals in the income and expenditure distributions, respectively. The difference between those at the bottom of the income and expenditure distribution and other individuals will be $S(\text{INC}_{0-10}) - S(\text{INC}_{10-100})$ and $S(\text{EXP}_{0-10}) - S(\text{EXP}_{10-100})$, respectively. If those at the bottom of the income and expenditure distributions are worse off in terms of their life satisfaction, these differences will be negative.

To test whether expenditure is a better indicator of life satisfaction than income, we also look at the difference in difference summary measure denoted by $[S(\text{EXP}_{0-10}) - S(\text{EXP}_{10-100})] - [S(\text{INC}_{0-10}) - S(\text{INC}_{10-100})]$. A negative figure would indicate that expenditure is more closely correlated with well-being, as measured by life satisfaction score.

Table 5.1 a) presents the results from these calculations for non-retired individuals. Columns (3) and (6) suggest that people at the bottom income and expenditure deciles, respectively, fare worse in terms of life satisfaction than other individuals. Column (7) confirms that our expenditure measure is a better indicator of well-being.

Table 5.1. Relationship between life satisfaction and income/expenditure**a) Non-retired individuals**

Well-being measure	Percentile of income		Diff	Percentile of expenditure		Diff	Diff in diff	St error of (7)
	0-10	10-100		0-10	10-100			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Life satisfaction	0.022	0.034	-0.012	0.051	0.089	-0.038	-0.026	0.0591

b) Retired individuals

Well-being measure	Percentile of income		Diff	Percentile of expenditure		Diff	Diff in diff	St error of (7)
	0-10	10-100		0-10	10-100			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Life satisfaction	0.036	0.045	-0.009	0.032	0.092	-0.060	-0.051	0.0382

Table 5.1 b) presents the results for retired individuals. For this population group, the difference between those at the bottom expenditure decile and the rest of the population and those at the bottom income decile and other individuals is even larger than that for non-retired household, confirming that expenditure is indeed a better predictor of well-being than income.

6. Conclusion

Poverty reduction is an important goal globally, with countries trying to meet targets set by global organisations like the United Nations and the World Bank. Although last few decades have seen significant progress towards reducing poverty, more needs to be done to take us where we want to be – ‘ending extreme poverty by 2030’¹⁶. Measuring poverty allows us to evaluate the effectiveness of poverty reduction strategies and make necessary adjustments. As discussed throughout this paper, there are many shortcomings to poverty measures and no single measure is able to adequately capture households’ experience of poverty. This analysis highlights an additional limitation of poverty measures, more specifically, expenditure-based poverty measures. We argue that although such

¹⁶ World Bank (2018)

measures can provide valuable insights into poverty, it would not be appropriate to use the same expenditure-based measure, in their traditional form, for both retired and non-retired households. We have shown that the retired population are a special group to look at, as they have different characteristics to the rest of the population. We propose that general expenditure-based poverty measures are adjusted, by excluding housing and work-related costs to reflect the differences between retired and non-retired households. Alternatively, one may consider looking at separate poverty measures for these population groups altogether. It is particularly important to consider differences between these two population groups, as there are retirees in every country, and like in many other countries, the UK's age structure is shifting towards later ages. ONS projects that by 2050, one in four people in the UK will be aged 65 years and over – a result of the combination of steadily declining fertility and people living longer ¹⁷. Failure to adapt poverty measures to the changing population structure of the country and to incorporate the special characteristics of retired people in poverty analysis, would mean that poverty reducing policies may not be targeted effectively and to the population groups that would benefit most from them.

¹⁷ ONS (2019), Overview of the UK population: August 2019

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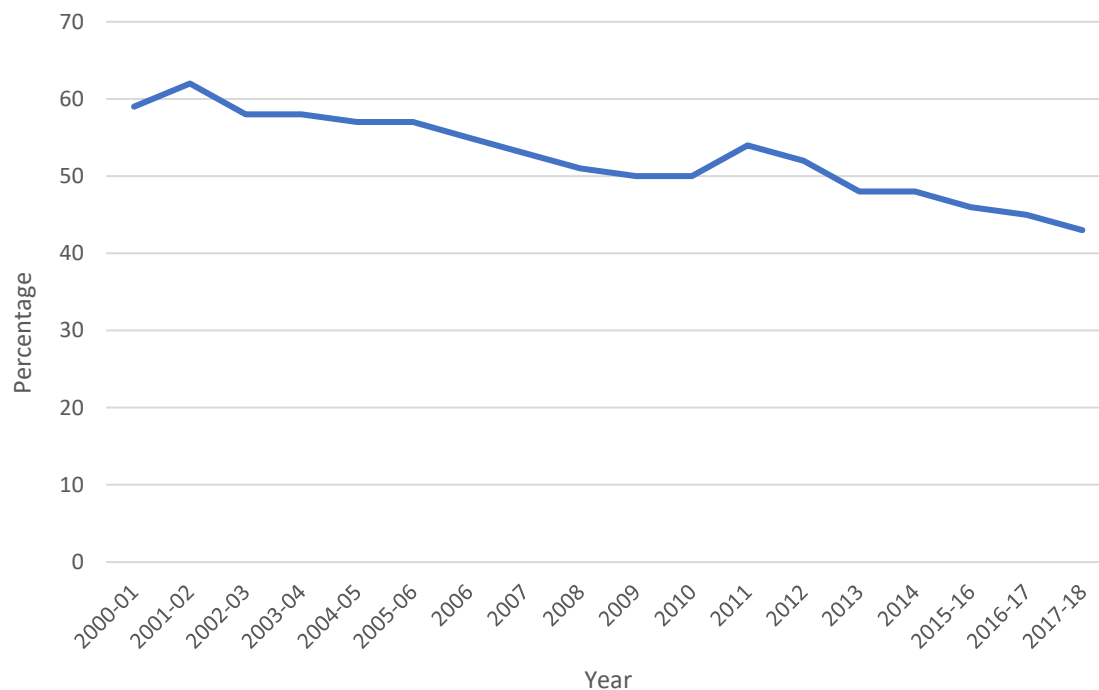
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Annex A

Figure A-1. LCFS response rates, 2000-2017



Source: ONS

Annex B

Definitions of income and expenditure

Income

The measure of household disposable income we use in our analysis is based on the income measure presented in the ONS publication of the Effects of Taxes and Benefits on Household Income. This includes original income from wages and salaries, imputed income from benefits in kind (e.g. company car) self-employment income, private pensions and annuities, investment income and other income sources. Direct benefits in cash are added to that to arrive at a gross income measure. Direct taxes and employees' national insurance contributions are then deducted from gross income to arrive at disposable income. We follow Stoyanova and Tonkin (2018) and made a few adjustments to bring the measure of disposable income to an AHC basis. More specifically, we deducted the following costs from our original disposable income measure:

- gross rent maintenance and repair of dwelling

- water rates, community water charges and council water charges, as well as ground rent and service charges
- mortgage interest payments
- structural insurance

Expenditure

Again, we follow Stoyanova and Tonkin (2018) and start with total consumption expenditure from LCFS. We then make the following adjustments to this measure:

- deduct gross rent
- deduct maintenance and repair of dwelling
- deduct water rates, community water charges and council water charges, as well as ground rent and service charges
- deduct insurance premiums related to housing
- add on expenditure on licences, fines and transfers
- add on holiday spending
- add on gambling receipts as negative expenditure

Annex C

Equivalisation of household income and expenditure

Equivalisation accounts for differences in household composition. Since we are using AHC measures for both income and expenditure, we use an equivalisation scale that reflects our AHC definition – a ‘companion’ scale adopted by DWP in their HBAI publication (only when AHC measures are considered). This scale is slightly different than the OECD-modified scale because it reflects the idea that housing is more shareable than other expenditure items, such as food.

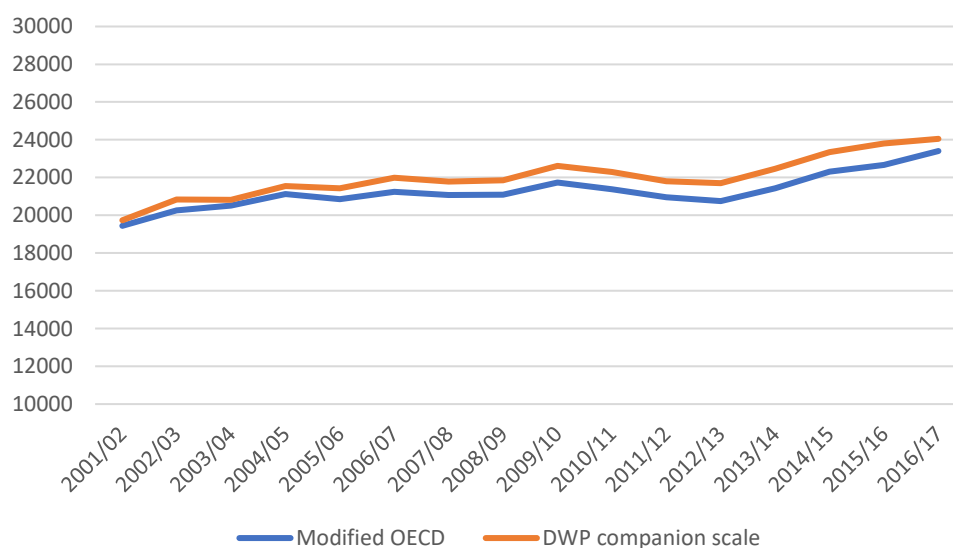
Table C-1. Companion equivalisation scale

Household member	Variant 1 factor	Description
1st adult	0.58	Much 'flatter' scale than modified OECD, to reflect lower economies of scale in non-housing consumption
Other 2nd adult	0.42	
3rd adult	0.42	Equal to 2nd adult, as in modified OECD
Subsequent adults	0.42	Equal to 2nd adult, as in modified OECD
Child under 14	0.20	Preserves the BHC (modified OECD) ratio of child to couple
Child 14+	0.42	Equal to 2nd adult, as in modified OECD

Source: Stoyanova and Tonkin (2018)

The figure below shows the difference between the OECD-modified scale and the DWP companion scale when applied to median disposable income.

Figure C-1. Median household disposable income - modified OECD vs DWP 'companion' scale



Source: Stoyanova and Tonkin (2018)

