

Compendium

## Chapter 3: Equivalised income

A report on the Living Costs and Food Survey 2013, including spending on housing, utilities and other outgoings.



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### Table of contents

1. [Abstract](#)
2. [Key points](#)
3. [Background](#)
4. [Income, expenditure and well-being](#)
5. [Household expenditure by income](#)
6. [Household expenditure by household composition and income](#)
7. [Equivalisation methodology](#)
8. [Equivalisation results](#)
9. [Background notes](#)

# 1 . Abstract

This chapter examines how expenditure varies with equivalised income. Equivalised income is household income that has been recalculated to take into account the fact that households with many members are likely to need a higher income to achieve the same standard of living as households with fewer members.

## 2 . Key points

- Lower income households spend a higher proportion of their total expenditure on food and drink than higher income households (16% compared to 8%), although households in the highest income group spent £35 more per week than households in the lowest income group
- The proportion of total expenditure on recreation and culture increased with income (9% to 15%). This reflects the expectation that higher income households have more income available to spend on discretionary items
- Expenditure patterns differ between retired and non-retired households. For example, among one person households spending on clothing and footwear increased by £21.60 for non-retired households between the top and bottom income groups, compared to an increase of £2.40 for retired households
- Spending on food and drink by income differed for one person households, in comparison to the overall pattern for all household types. There was little variation in spending by one person households as income increased (£10.20 for one person non-retired households, £6.00 for one person retired households, compared to £34.70 for all households)

## 3 . Background

This chapter examines how expenditure varies with equivalised income, which refers to household income that has been recalculated to take into account differences in household size and composition.

Equivalisation is a standard methodology that adjusts household income to account for the different financial resource requirements of different household types. Household size is an important factor to consider because larger households usually need a higher income than smaller households to achieve a comparable standard of living. The composition of a household also affects resource needs, for example, living costs for adults are normally higher than for children. After equivalisation has been applied, households with the same equivalised income can be said to have a comparable standard of living.

Data for disposable income has been published and is reported on in this chapter. Gross income tables are available on request. Disposable income is defined as gross weekly cash income less the statutory deductions and payments of income tax and National Insurance contributions<sup>1</sup>. Most analysis looking at income and expenditure together looks at disposable rather than gross income. This is because disposable income is the amount that households have available to spend or save.

Full details of the equivalisation methodology used are given in the 'Equivalisation Methodology' section. Information on how the equivalisation process affects the distribution of income data for different household types is in the 'Equivalisation Results' section.

### Notes for background

1. For other ONS and DWP publications, council tax and domestic rates (Northern Ireland) are also deducted from gross income to provide a measure of disposable income. For Family Spending council tax and domestic rates (Northern Ireland) are counted as expenditure within the total expenditure definition.

## 4 . Income, expenditure and well-being

For many households, income is their most important economic resource for meeting everyday living expenses. However, it is the consumption of goods and services (best reflected by expenditure) that is pivotal in meeting a household's requirements. As highlighted in the remainder of this section evidence suggests that income and expenditure together represent a better determinant of economic well-being than income alone.

Expenditures change less than incomes when short term changes in incomes are encountered, and can therefore be considered a better proxy of living standards. Households can smooth expenditure by, for example, adjusting savings, drawing on wealth and borrowing, whereas incomes may be more volatile. This led to Friedman's 'permanent income hypothesis', which suggests that decisions made by consumers are based on long-term income expectations rather than their current income. [Headey, Muffels and Wooden, 2004](#) describe expenditure as 'the most valid measure of current living standards' in their analysis of household finances and well-being.

In addition, recent ONS analysis shows that household spending matters more to many aspects of personal well-being than household income. As spending rises, average life satisfaction (the sense that what one does in life is worthwhile) and happiness also rise ([Lewis, 2014](#)).

The Commission on the Measurement of Economic Performance and Social Progress ([Stiglitz, Sen and Fitoussi, 2009](#)) recommended that greater prominence should be given to the distributions of income and expenditure across households.

For given levels of expenditure, and everything else being equal, people with higher income can be seen as having a higher level of well-being from a personal finance perspective than people with lower income. With higher income, they have greater opportunity to increase expenditure if they want, or to save income to finance expenditure in the future.

In light of this context, this chapter examines how expenditure varies with income.

## 5 . Household expenditure by income

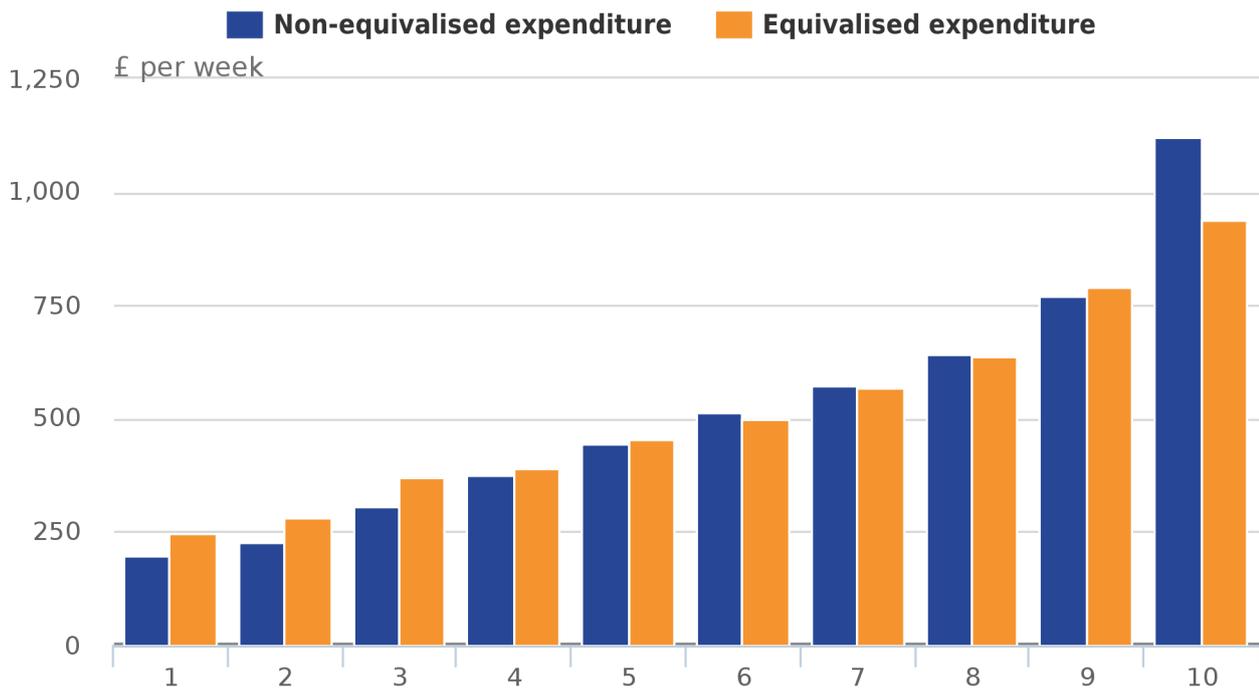
This section illustrates how separating the expenditure patterns for different types of goods and services provides a fuller picture of how households with different levels of income spend their money.

[Tables 3.1 \(422 Kb Excel sheet\)](#) and [3.1E \(89 Kb Excel sheet\)](#) show expenditure, in total and for each of the Classification of Individual Consumption by Purpose (COICOP) categories, by non-equivalised and equivalised disposable income decile groups respectively.

As shown in figure 3.1, there was an overall increase in total expenditure as equivalised income, and non-equivalised income increased. In 2012 there was a similar pattern, although the second equivalised income decile had a slightly lower expenditure than the bottom non-equivalised income decile. This is often referred to as an 'expenditure tick'.

**Figure 3.1: Household expenditure by non-equivalised and OECD-modified equivalised disposable income decile group, 2013**

United Kingdom



Source: Living Costs and Food Survey - Office for National Statistics

In 2012 it was suggested that an 'expenditure tick' could be partly due to consumption smoothing. Consumption smoothing is caused by individuals who have a low income on a short-term basis but who have higher expenditure than expected for their level of income, such as students and the temporarily unemployed. The absence of the expenditure tick in 2013 could be due to the fall in the unemployment rate between 2012 and 2013 as reported in [Labour Market Statistics, February 2014](#). The number of unemployed adults who were expecting to start work within the next few weeks fell, potentially reducing the impact of the temporarily unemployed whose spending may have been based on expected future income. However, as the Living Costs and Food Survey only collects information on households' current income sources, it is not possible to establish whether longer term income expectations account for the expenditure pattern observed.

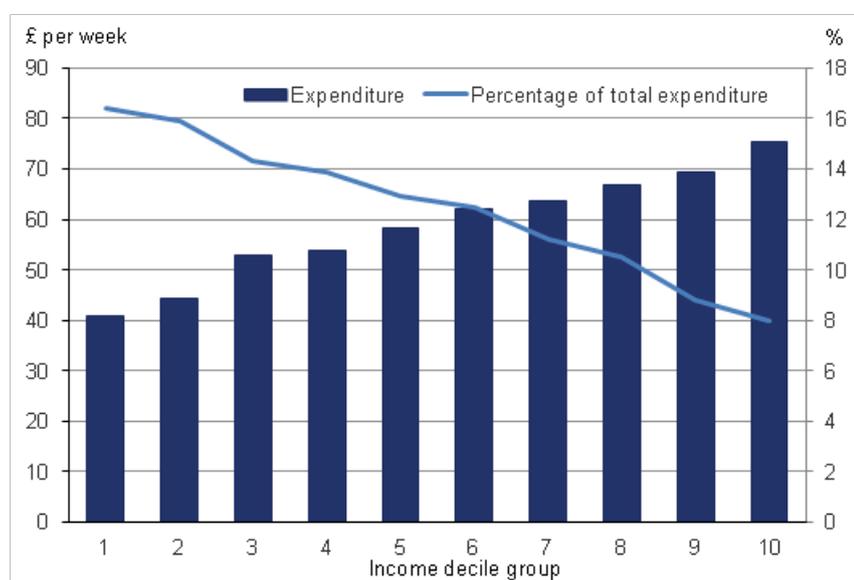
Expenditure in the lower income decile groups increased after income was equivalised. This is due to the impact the equivalisation method has on the income positioning of households with children, and single adult households. Equivalisation increases the number of households with children in the lower income groups, whose spending is likely to be higher than households containing one adult. These households tend to move to a higher income decile group after income is equivalised. For more details see 'Equivalisation Results'.

[Tables 3.2 \(481 Kb Excel sheet\)](#) and [table 3.2E \(118.5 Kb Excel sheet\)](#) show the share of total expenditure on each COICOP category, by non-equivalised and equivalised income groups. The rest of this section compares the absolute spending and the share of total expenditure by equivalised disposable income for different categories of spending.

Expenditure on food and non-alcoholic drink rose with equivalised income, whilst the proportion of total expenditure on food and non-alcoholic drink decreased (see figure 3.2). Clearly all households have to spend a certain amount on food and non-alcoholic drink. However, as income rises households spend more in absolute terms on this category, but there is a limit to how much food households consume and the amount they are willing to spend overall. As a result of this, households in the higher equivalised disposable income decile groups spend a lower proportion of their expenditure on food and non-alcoholic drink than households in the lower income decile groups. As income rises from the lowest to the highest equivalised disposable income decile group, spending almost doubles from £40.70 to £75.40. However, for households in the bottom equivalised disposable income decile group food and non-alcoholic drinks accounted for 16% of total expenditure, compared to 8% for the top equivalised disposable income decile group.

**Figure 3.2: Expenditure on food and non-alcoholic drinks (absolute expenditure and as a percentage of total expenditure) by OECD-modified equivalised disposable income decile group, 2013**

**United Kingdom**

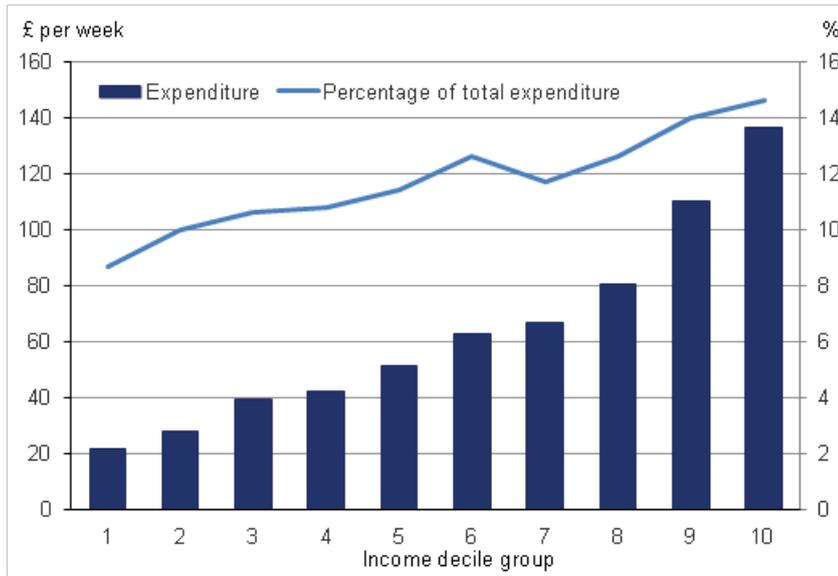


**Source: Living Costs and Food Survey - Office for National Statistics**

For certain categories where spending can be seen as non-essential, the proportion of total expenditure increased, as well as the amount. An example of this is recreation and culture, which includes expenditures that are almost entirely non-essential (such as package holidays, sports admissions and audio-visual equipment). Higher income households may be expected to have more available to spend on recreational activities, for example, package holidays abroad where the pattern is particularly evident. Figure 3.3 shows the highest equivalised income households spent £137 per week on recreation and culture. This is around six times as much as households in the lowest equivalised income decile, which only spent £22 per week. The proportion of spending increases from 9% to 15%. Figure 3.4 shows a breakdown of selected lower-level items in recreation and culture, showing the pattern above for package holidays.

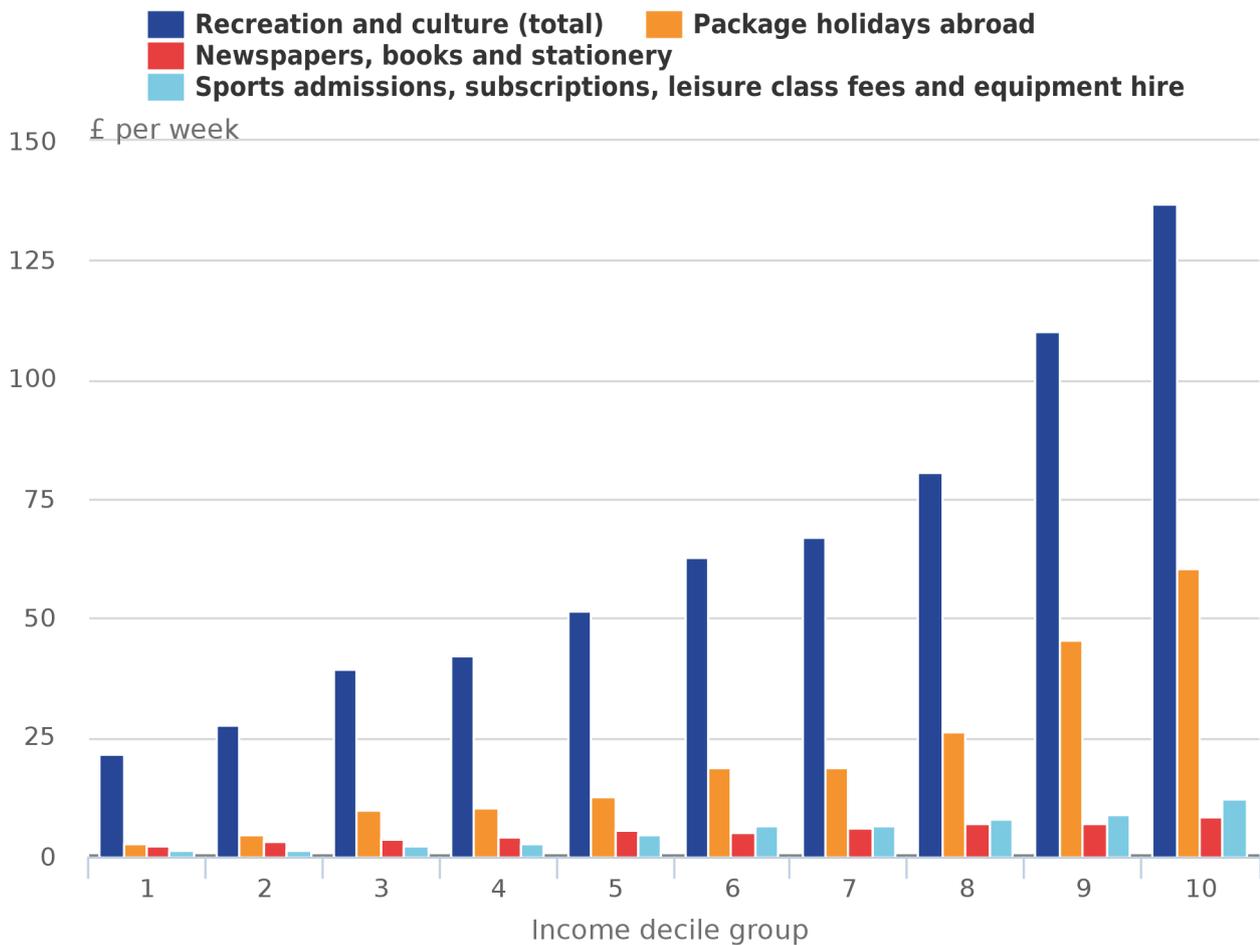
**Figure 3.3: Expenditure on recreation and culture (absolute expenditure and as a percentage of total expenditure) by OECD-modified equivalised disposable income decile group, 2013**

## United Kingdom



**Figure 3.4: Expenditure on recreation and culture and selected lower-level items by OECD-modified equivalised disposable income decile group, 2013**

United Kingdom



Source: Living Costs and Food Survey - Office for National Statistics

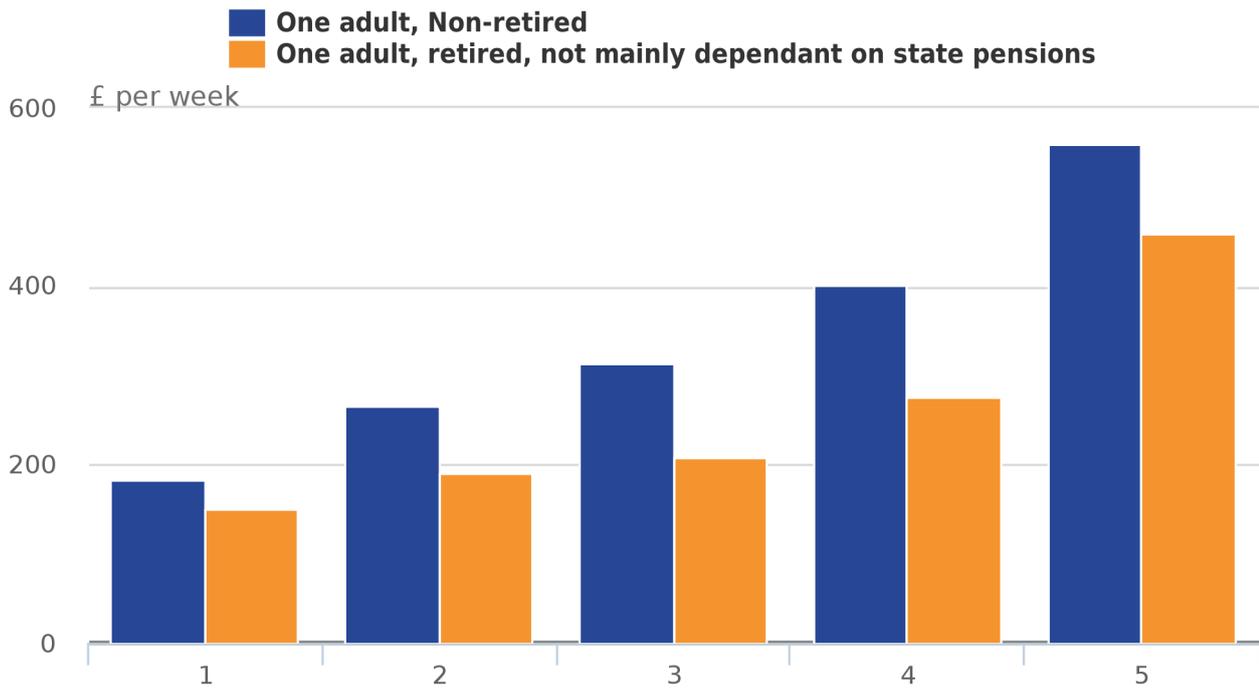
## 6 . Household expenditure by household composition and income

This section looks at how expenditure varies with income for retired and non-retired households containing one adult (see tables 3.3 to 3.10 and tables 3.3E to 3.10E). One adult retired and non-retired households have been chosen as an example of how expenditure varies with income for different household types. Retired households are those where the householder has reached state pension age, is not working or seeking work, and is mainly dependent on income sources other than the state pension (for example, occupational pension, income from investments, or annuities). Retired households mainly dependent on state pensions have been excluded from this analysis as they have low sample sizes.

As seen in figure 3.5, total expenditure for both non-retired and retired households containing one adult rose with equivalised disposable income quintile (these increased by £375 per week for non-retired households, and £308 per week for retired households). For each quintile group, absolute spending was higher for households containing one non-retired adult. Most individual expenditure categories showed a similar pattern, but for some categories the variation in spending with income was more or less marked.

**Figure 3.5: Expenditure for one adult households by OECD-modified equivalised disposable income quintile group, 2013**

United Kingdom

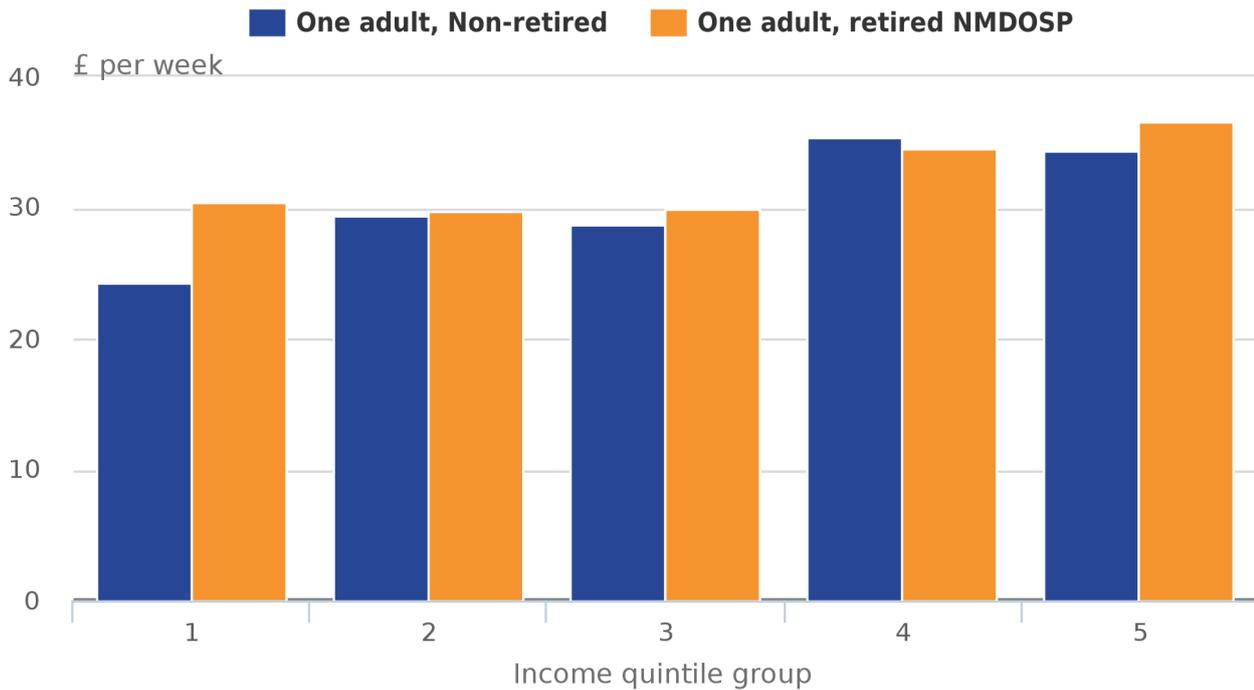


Source: Living Costs and Food Survey - Office for National Statistics

Spending on food and non-alcoholic drink was similar for both types of household for the second to fifth income quintiles, as shown in figure 3.6. There is much less variation in spending between income quintile groups for both household types as compared to the overall picture of expenditure on food and non-alcoholic drink seen in figure 3.2, where there is a strong trend of expenditure increasing with income. This suggests spending additional income on food is less of a priority for one-person households than for other household types.

**Figure 3.6: Expenditure on food and non-alcoholic drinks for one adult households by OECD-modified equivalised disposable income quintile group, 2013**

United Kingdom

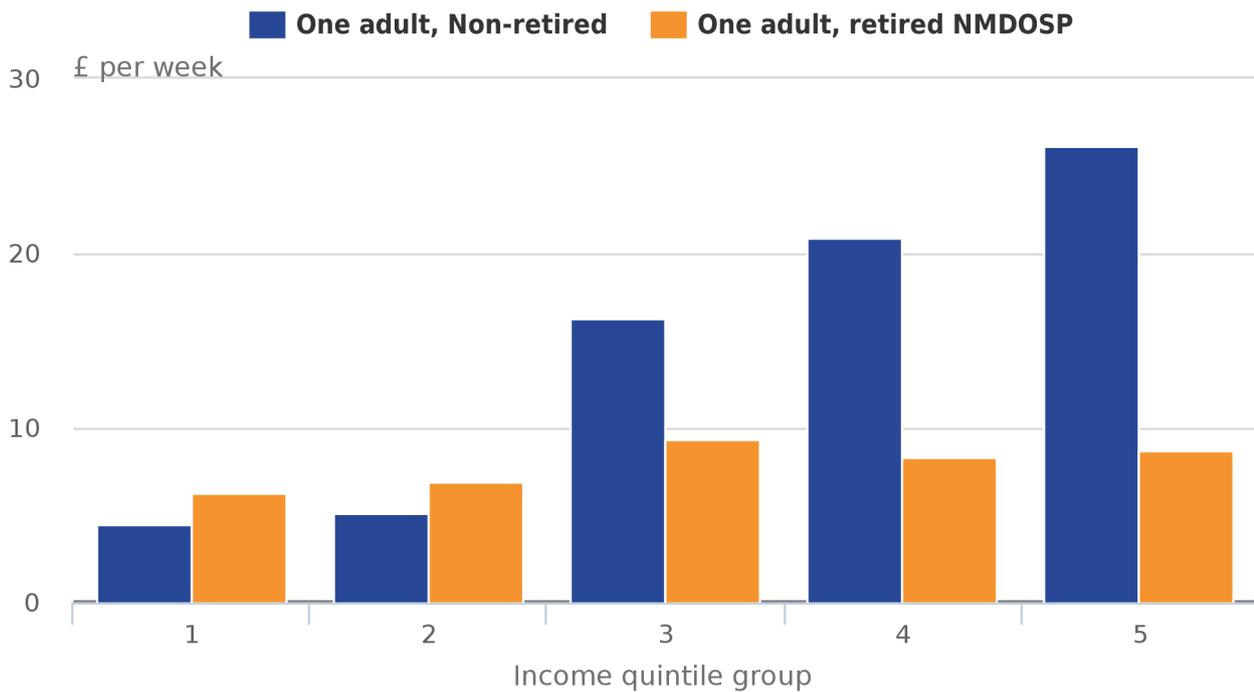


Source: Living Costs and Food Survey - Office for National Statistics

For non-retired households made up of one adult, spending on clothing and footwear increased sharply as equivalised disposable income increased. However, there was very little increase among retired households. Spending on essential clothing is expected for all households but clothing offers a broad range of price. The pattern seen for one adult non-retired households may be due to higher income households choosing to buy more expensive items, or choosing to buy more new clothes. The contrasting pattern seen in one person retired higher income households may reflect a lower priority for buying expensive or new clothes compared to other categories of spending.

**Figure 3.7: Expenditure on clothing and footwear for one adult households by OECD-modified equivalised disposable income quintile group, 2013**

United Kingdom

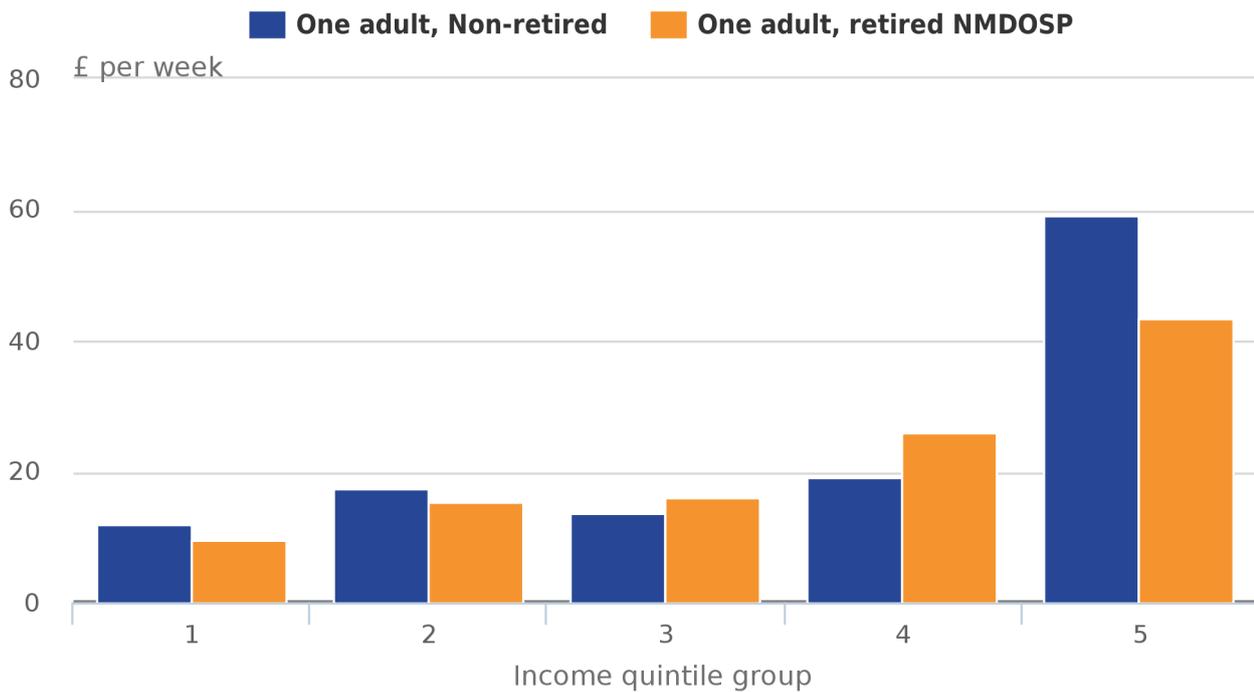


Source: Living Costs and Food Survey - Office for National Statistics

Households containing one retired and non-retired adult have broadly similar levels and patterns of spending on household goods and services. Higher-earning retired and non-retired households spend more on items such as furniture, household appliances, and household garden tools. Non-retired households only spend notably more on these (arguably non-essential) expenditure items in the highest income quintile than retired households.

**Figure 3.8: Expenditure on household goods and services for one adult households by OECD-modified equivalised income quintile group, 2013**

United Kingdom

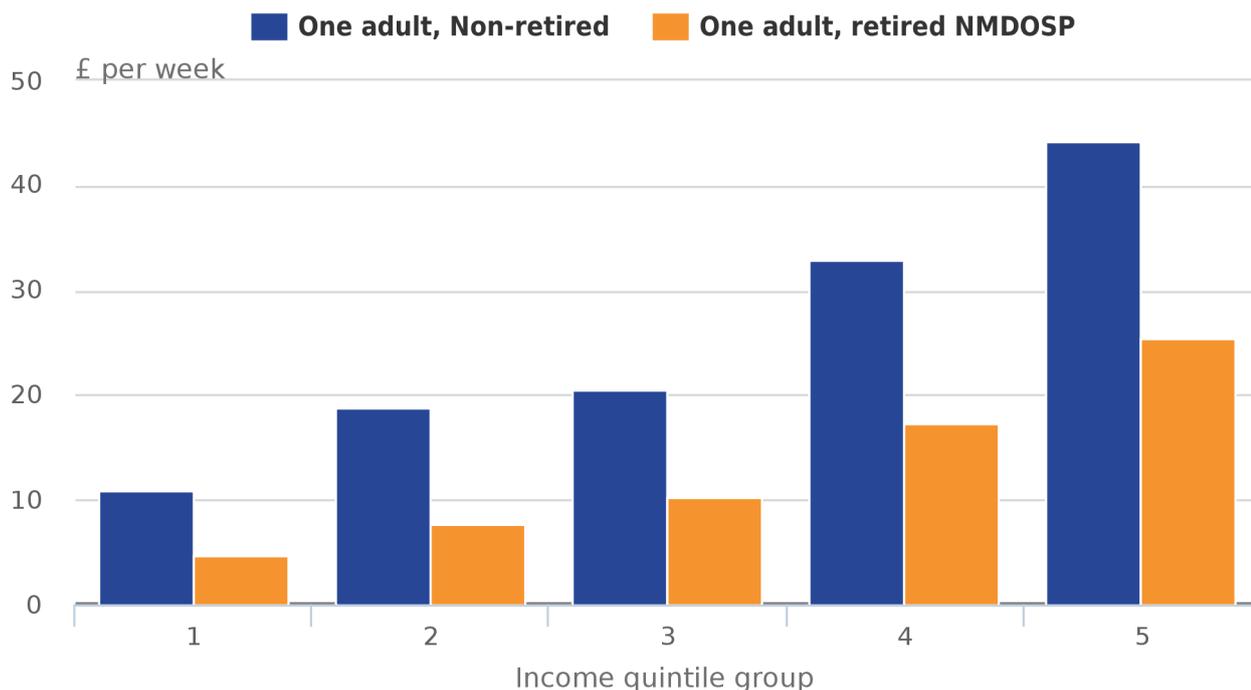


Source: Living Costs and Food Survey - Office for National Statistics

As figure 3.9 shows, there is a general pattern of increasing expenditure on restaurants and hotels for both one adult non-retired and retired households, with non-retired households consistently spending more over income bands.

**Figure 3.9: Expenditure on restaurants and hotels for one adult households by OECD-modified equivalised disposable income quintile group, 2013**

United Kingdom



Source: Living Costs and Food Survey - Office for National Statistics

These points illustrate how expenditure requirements differ between retired and non-retired households; note that non-retired households tend to have higher incomes. Income quintiles have been calculated separately for retired and non-retired households for this analysis, so patterns of expenditure within these groups can be explored meaningfully.

Examining spending patterns by income allows us to see how households prioritise spending on essentials, and how they balance this with enjoying some non-essential goods and services. The analysis above suggests that retired and non-retired households prioritise spending additional income differently for some spending categories. Equivalisation is a powerful tool to understand how income relates to the needs and choices of households of different sizes and compositions. The complex findings give some clues as to what is important for well-being. [Chapter 4](#) looks at how spending patterns have changed over time.

## 7 . Equivalisation methodology

Equivalisation scales are used to adjust household income, taking into account household size and composition. There are various scales available, which differ in their complexity and methodology. The so-called OECD modified equivalence scale is used widely across Europe. It adjusts household income to reflect the different resource needs of single adults, any additional adults in the household, and children in various age groups.

The modified OECD equivalence scale is the standard scale for the Statistical Office of the European Union (Eurostat). It is also used by several government departments in the UK for key household income statistics. For example, the Department for Work and Pensions (DWP) use the modified OECD equivalence scale for their Households Below Average Income (HBAI) publication. ONS use it for the Effects of Taxes and Benefits on Household Income (ETB) analysis.

To calculate equivalised income using the modified OECD equivalence scale, each member of the household is first given an equivalence value. The modified OECD equivalence values are shown in table 3A. Single adult households are taken as the reference group and are given a value of one. For larger households, each additional adult is given a smaller value of 0.5 to reflect the economies of scale achieved when people live together. Economies of scale arise when households share resources such as water and electricity, which reduces the living costs per person. Children under the age of 14 are given a value of 0.3 to take account of their lower living costs, children aged 14 and over are given a value of 0.5 because their living costs are assumed to be the same as an adult.

**Table 3A: OECD-modified equivalence scale as applied by household composition**

Type of Household Member	Equivalence value
First adult	1.0
Additional adult	0.5
Child aged: 14 and over	0.5
Child aged: 0-13	0.3

Source: Office for National Statistics

The equivalence values for each household member are summed to give a total equivalence number for the household. For example, the total equivalence value for a household with a married couple with two children aged 10 and 14 is calculated as follows:

$$1 \text{ (first adult)} + 0.5 \text{ (second adult)} + 0.5 \text{ (14-year-old child)} + 0.3 \text{ (10-year-old child)} = 2.3$$

The total equivalence value of 2.3 shows that the household needs more than twice the income of a single adult household in order to achieve a comparable standard of living.

In the final step of the calculation the total income for the household is divided by the equivalence value. For example, if the household described in the example above has an annual income of £30,000, their equivalised income is calculated as follows:

$$£30,000/2.3 = £13,043$$

For a single adult household with an income of £30,000, the equivalised income remains at £30,000. This is because the equivalence value for this household is equal to one. This demonstrates that a single adult household will have a higher standard of living than a larger household with the same level of income.

## 8 . Equivalisation results

Equivalised household incomes were calculated for each household using the modified OECD equivalence scale. Household equivalised incomes were then ranked in ascending order and divided into ten equally-sized (decile) groups. Households with the lowest equivalised income make-up the first decile group. Non-equivalised disposable income data are presented in tables 3.1 to 3.11; equivalised disposable income data based on the modified OECD scale are shown in tables 3.1E to 3.11E.

The income decile groups can be seen in table 3B.

**Table 3B: Income deciles for disposable weekly income and disposable weekly equivalised income, 2013**

Income decile	Disposable weekly income	Disposable weekly equivalised income (OECD-modified scale)
1	Up to £173	Up to £141
2	£174 to £255	£142 to £188
3	£256 to £332	£189 to £230
4	£333 to £416	£231 to £277
5	£417 to £503	£278 to £318
6	£504 to £599	£319 to £368
7	£600 to £719	£369 to £431
8	£720 to £881	£432 to £519
9	£882 to £1149	£520 to £663
10	£1,150 and over	£664 and over

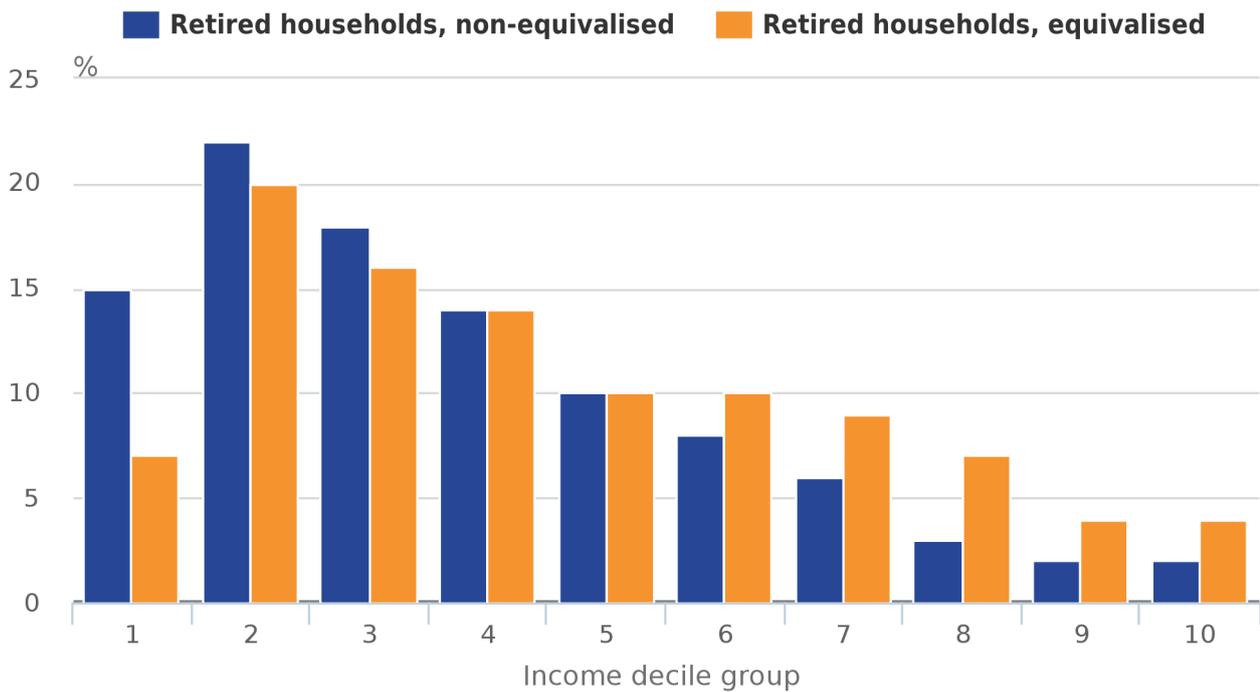
Source: Office for National Statistics

[Table 3.12 \(43.5 Kb Excel sheet\)](#) shows the household composition of the non-equivalised disposable income decile groups and the OECD-equivalised disposable income decile groups. Equivalisation has a large impact on the income positioning of households containing one adult without children. Households containing one non-retired adult accounted for only 3% of households in the highest non-equivalised disposable income decile group but when income was equivalised they accounted for 16%. These households tended to move to a higher income decile group after income was equivalised. These results demonstrate that when equivalisation is used to look at the incomes of all households on a comparable basis, single adult households tend to be better off than they appear pre-equivalisation.

The percentage of households where the household reference person is retired in each income group, before and after equivalisation is shown in figure 3.10. Equivalisation has a large effect on the proportion of retired households in the lowest income decile group. Before equivalisation, 15% of all retired households appeared in the lowest non-equivalised disposable income decile group; after equivalisation, only 7% of retired households appeared in this group. This result can largely be explained by the fact that a relatively high proportion of retired households contain only one adult. Therefore, as explained above, the incomes of single adult households are scaled up (relative to other households) when income is equivalised. The proportion of retired households in the second and third lowest income deciles also decreased after equivalisation, although the effect was much smaller. The opposite was true of the higher income decile groups; the proportion of retired households increased slightly after income was equivalised.

**Figure 3.10: Percentage of retired households by non-equivalised and OECD-modified equivalised income decile group, 2013**

United Kingdom

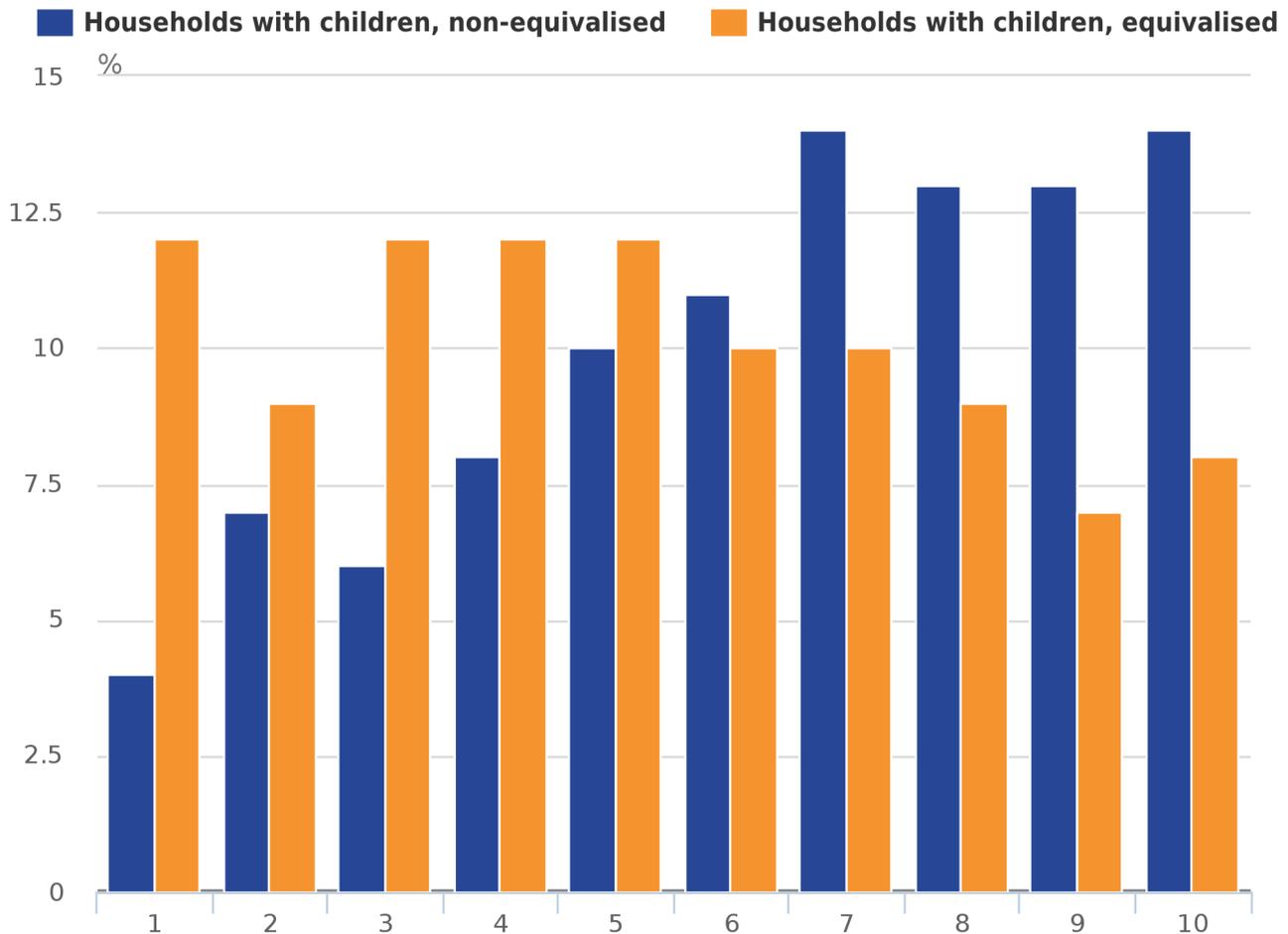


Source: Living Costs and Food Survey - Office for National Statistics

Figure 3.11 shows the percentage of households with children in each income group, before and after income equivalisation. As non-equivalised disposable income increases, the proportion of households with children generally increases through the lower and middle income groups. Factoring in living costs for children as part of the equivalisation process brings about large changes in the income distribution. There are more households with children in the lower income groups and there is no longer an increase in the number of households with children as income increases.

**Figure 3.11: Percentage of households with children in each non-equivalised and OECD-modified equivalised income decile group, 2013**

United Kingdom



Source: Living Costs and Food Survey - Office for National Statistics

[Table 3.12 \(43.5 Kb Excel sheet\)](#) also shows how equivalisation affects the average household size for each income decile group. As non-equivalised disposable income increases the average number of people in each household also increases. The average household size for the highest income group (3.2 people) was almost two and a half times that of the lowest income group (1.3 people). After income was equivalised, the average number of people in each household was more similar for each income decile group, with the average varying between 2.1 and 2.5. This pattern of results occurs because the equivalisation process scales up the income of households containing one adult (relative to other households) and scales down the income of households with more people.

This is the only chapter that presents equivalised income data. Other tables included in Family Spending are available on an equivalised income basis on request from ONS (see 'About this edition of Family Spending').

## 9. Background notes

### 1. Symbols and conventions used in Family Spending 2014 edition

[ ] Figures should be used with extra caution because they are based on fewer than 20 reporting households.

.. The data is suppressed if the unweighted sample counts are less than 10 reporting households.

- No figures are available because there are no reporting households.

Rounding: Individual figures have been rounded independently. The sum of component items does not therefore necessarily add to the totals shown.

Averages: These are averages (means) for all households included in the column or row, and unless specified, are not restricted to those households reporting expenditure on a particular item or income of a particular type.

Period covered: Calendar year 2013 (1 January 2013 to 31 December 2013).

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