The Effects of Taxes and Benefits on Household Income, 2010/11 – Further Analysis and Methodology

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Abstract

This supplementary material is intended to provide further analysis on The effects of taxes and benefits on household income and to illustrate how these data are derived. It follows a similar structure to the statistical bulletin and also provides details on the methodology, concepts, sources and information on their quality.

Redistribution of income

The five stages can be summarised as follows:

1. **Original income.** To begin with, household members receive income from employment and self-employment, private pensions, investments and from other non-government sources.
2. **Gross income** is original income, plus income from cash benefits (for example state retirement pension, income support and pension credit).
3. **Disposable income** is gross income minus households’ payment of direct taxes such as income tax, employees’ National Insurance contributions and council tax.
4. **Post-tax income** is disposable income after households pay indirect taxes (for example Value Added Tax (VAT)).
5. **Final income** is the estimate of income after notional benefits in kind provided to households by the Government are added.

Note that at no stage are deductions made for housing costs.
Stages of redistribution

Diagram A: Average household income, cash benefits and taxes, 2010/11

ORIGINAL INCOME
Before government intervention
(for example income from employment and investment)
£32,096

CASH BENEFITS
(for example state retirement pensions)
£5,646

GROSS INCOME
£37,741

DIRECT TAXES, EMPLOYEES’ NIC and LOCAL TAXES
(for example council tax)
£7,453

DISPOSABLE INCOME
£30,288

INDIRECT TAXES
(for example VAT and duties)
£5,250

POST-TAX INCOME
£25,039

BENEFITS IN KIND
(for example health and education)
£7,089

FINAL INCOME
£32,127

Source: Office for National Statistics
Original Income

The starting point of the analysis is **original income**. This is the annualised income in cash of all members of the household before the deduction of taxes or the addition of any state benefits. It includes income from employment, self-employment, investment income, private pensions and annuities which include all workplace pensions, individual personal pensions and annuities. This data is collected through the Living Costs and Food Survey (LCF; see background note 2 for further information on data sources). The term ‘annualised’ refers to the estimate of income expressed at an annual rate based on the respondent's assessment of their 'normal' wage or salary subject to their current employment status. Where a respondent has been unemployed for less than one year, their normal wage or salary (for their last job) is abated for the number of weeks absence (where the respondent is off sick; receiving incapacity benefit; on a government training scheme; on maternity leave or receiving job seeker’s allowance).

Similarly, for those in employment, this annualised estimate is ‘abated’ for the number of weeks lost in the last 12 months due to sickness, maternity and so on. This is to avoid double counting wages and salaries, and cash benefits. The abatement figure is taken as the number of weeks lost in the 12 months prior to interview.

About 98 per cent of original income comes from earnings, private pensions (including annuities) and investment income. The very small bit remaining comes from a variety of sources: trade union benefits, income of children under 16, private scholarships, earnings as a mail order agent or baby-sitter, regular allowances from a non-spouse, allowances from an absent spouse and the imputed value of rent-free accommodation. Households living in rent-free dwellings are each assigned an imputed income (although this is counted as employment income if the tenancy depends on the job). This imputed income is estimated based on mortgage interest payment data for each of the regions and UK countries.

In addition to salary, many employees receive fringe benefits as part of their income such as company cars, private medical insurance and beneficial loans (loans with a rate of interest that is below the market rate). The company car benefit, together with the benefit from fuel for personal use, has been included in the analysis since 1990. This is by far the most important fringe benefit, accounting for around 60 per cent of total taxable benefits by value according to the latest HM Revenue and Customs' (HMRC) statistics.

The imputed income allocated to households is the taxable value of the benefit in accordance with HMRC rules. Although, for those earning below £8,500 per year the benefit is not taxable, here the benefit has been allocated to all those with a company car regardless of the level of earnings. This imputation uses data from a number of sources. Administrative data from the Vehicle Certification Agency (VCA) is used to calculate average **CO$_2$** emissions and the average value of the car is taken from the LCF. This data is then used to calculate this benefit according to HMRC rules, which also includes a fuel element.

The benefit of subsidised loans from employers for house purchase has been allocated included in this analysis since 1992. The benefit is taken to be the difference between the interest payments on
such loans as reported in the LCF and the interest payments that would have been payable at the ruling market rate of interest.

**Gross income**

The next stage of the analysis is to add cash benefits and tax credits to original income to obtain *gross income*. This is slightly different from the ‘gross normal weekly income’ used in the LCF report *Family Spending*, as the gross income measure in ‘The effects of taxes and benefits on household income’ analysis makes adjustments to abate for weeks of work lost for reasons discussed in the *original income* section. Cash benefits and tax credits include:

1. Contributory benefits: State pension, contribution based job seeker’s allowance, incapacity benefit, widows’ benefits, and statutory maternity pay.
2. Non-contributory: Income support, income based job seeker’s allowance, child benefit, housing benefit (council tax benefit and rates rebates are treated as deductions from council tax and Northern Ireland rates), statutory sick pay, carer’s allowance, attendance allowance, disability living allowance, war pensions, severe disablement allowance, industrial injury disablement benefits, child tax credit and working tax credit, pension credit, over 80 pension, Christmas bonus for pensioners, government training scheme allowances, student support, and winter fuel payments.

**Figure A** shows the extent to which cash benefits increase incomes, from the bottom fifth to the top fifth of households. It can also be seen that the majority of cash benefits go to low income households. In 2010/11, the average cash benefits received by households was £5,600 per year, 15 per cent of the average gross income. This proportion is unchanged from 2009/10.

**Figure A (Reference Table 14A): Gross income by quintile groups of ALL households, 2010/11**
Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.

Statutory maternity pay is classified as a cash benefit even though it is paid through the employer. Statutory sick pay receives the same treatment and is included as part of other non-contributory benefits. From 2005/06, student support included educational maintenance allowance as well as other education grants. Winter fuel payments are included within the category ‘other non-contributory benefits’.

Child tax credit (CTC) and working tax credit (WTC) are more complicated. They are classified as a negative income tax, but only to the extent that income tax less tax credits, remains greater than or equal to zero, for each household. So, for households paying relatively little or no income tax, tax credit payments are regarded either partially or wholly, as cash benefits.

Income from short-term benefits (for example job seeker’s allowance) is taken as the product of the last weekly payment and the number of weeks the benefit was received in the 12 months prior to interview. Income from long-term benefits (for example disability living allowance), and from housing benefits, is based on current rates.

In this analysis, the state pension is considered a contributory cash benefit. As a result, retired households’ (see Glossary in the Supporting information section) contributory benefits accounted for 78 per cent of the total cash benefits. However, for non-retired households, non-contributory benefits make up nearly three-quarters of all cash benefits on average. Table A gives a summary of the cash benefits that each non-retired quintile group received in 2010/11.
Table A (Reference Table 7): Cash benefits for NON-RETIRED households by quintile groups, 2010/11

<table>
<thead>
<tr>
<th>Quintile groups of NON-RETIRED households</th>
<th>Bottom</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Top</th>
<th>All non-retired households</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average per household (€ per year)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State pension</td>
<td>147</td>
<td>750</td>
<td>901</td>
<td>761</td>
<td>584</td>
<td>629</td>
</tr>
<tr>
<td>Incapacity benefit</td>
<td>427</td>
<td>461</td>
<td>195</td>
<td>36</td>
<td>14</td>
<td>227</td>
</tr>
<tr>
<td>Job seeker's allowance</td>
<td>115</td>
<td>54</td>
<td>24</td>
<td>19</td>
<td>4</td>
<td>43</td>
</tr>
<tr>
<td>Other</td>
<td>31</td>
<td>121</td>
<td>229</td>
<td>221</td>
<td>151</td>
<td>151</td>
</tr>
<tr>
<td><strong>Total contributory</strong></td>
<td>720</td>
<td>1,386</td>
<td>1,349</td>
<td>1,037</td>
<td>754</td>
<td>1,049</td>
</tr>
<tr>
<td>Non-contributory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income support and pension credit</td>
<td>813</td>
<td>661</td>
<td>209</td>
<td>70</td>
<td>17</td>
<td>354</td>
</tr>
<tr>
<td><strong>Tax credits</strong></td>
<td>1,462</td>
<td>1,085</td>
<td>420</td>
<td>83</td>
<td>20</td>
<td>614</td>
</tr>
<tr>
<td>Child benefit</td>
<td>838</td>
<td>744</td>
<td>622</td>
<td>488</td>
<td>414</td>
<td>621</td>
</tr>
<tr>
<td>Housing benefit</td>
<td>1,646</td>
<td>1,037</td>
<td>319</td>
<td>78</td>
<td>16</td>
<td>619</td>
</tr>
<tr>
<td>Job seeker's allowance</td>
<td>320</td>
<td>62</td>
<td>41</td>
<td>8</td>
<td>0</td>
<td>86</td>
</tr>
<tr>
<td>Sickness/disability benefit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>related benefit</td>
<td>455</td>
<td>804</td>
<td>546</td>
<td>245</td>
<td>111</td>
<td>432</td>
</tr>
<tr>
<td>Other</td>
<td>331</td>
<td>333</td>
<td>293</td>
<td>225</td>
<td>64</td>
<td>249</td>
</tr>
</tbody>
</table>
### Quintile groups of NON-RETIREd households

<table>
<thead>
<tr>
<th></th>
<th>Bottom</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Top</th>
<th>All non-retired households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total non-contributory</td>
<td>5,866</td>
<td>4,726</td>
<td>2,449</td>
<td>1,198</td>
<td>643</td>
<td>2,976</td>
</tr>
<tr>
<td>Total cash benefits</td>
<td>6,586</td>
<td>6,112</td>
<td>3,798</td>
<td>2,235</td>
<td>1,396</td>
<td>4,026</td>
</tr>
<tr>
<td>Cash benefits as a percentage of gross income</td>
<td>47</td>
<td>24</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

**Table source:** Office for National Statistics

**Table notes:**
1. Households are ranked by equivalised disposable income, using the modified-OECD scale.
2. Including employment support allowance.
3. Contribution based.
4. Child tax credit and working tax credit.
5. Income based.

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Most non-contributory benefits, particularly income support, tax credits and housing benefit, are income related and so payments are concentrated in the two lowest quintile groups. However, the presence of some individuals with low incomes in high income households means that some payments are recorded further up the income distribution. Of the total amount of income support, tax credits and housing benefit paid to non-retired households, 49 per cent goes to households in the bottom quintile group, a reduction from 52 per cent in 2009/10.

As households at the lower end of the distribution tend to have more children (as illustrated in Table F, Characteristics of households), we also see higher levels of child benefit at this end of the distribution.

In contrast to non-contributory benefits, the criterion for receipt of contributory benefits is the amount of National Insurance contributions that have been paid by, or on behalf of, the individual. The amounts received from these benefits are also higher in the lower half of the distribution, but to a lesser extent than for non-contributory benefits.
In 2010/11 cash benefits provided 47 per cent of gross income for non-retired households in the bottom quintile group, while they account for just 1 per cent of gross income in the top quintile. The payment of cash benefits therefore results in a significant reduction in income inequality.

**Disposable income**

Income tax, council tax and Northern Ireland rates, and employees' and self-employed National Insurance contributions are grouped as **direct taxes**. When direct taxes are subtracted from gross income it forms **disposable income**. Taxes on capital, such as capital gains tax and inheritance tax, are not included in these deductions because there is no clear conceptual basis for doing so, and the relevant data are not available from the LCF.

As previously mentioned, income tax is shown after the deduction of those tax credit payments which are regarded as negative income tax.

The figures for 'Council tax and Northern Ireland rates' include council tax (for households in Great Britain), and domestic rates (for households in Northern Ireland). Council tax is shown after discounts, for example, the discount of 25 per cent for single person households. All council tax and Northern Ireland rates are shown after the deduction of council tax benefit and rate rebates. This is in line with the UK National Accounts which treat such rebates as revenue foregone. Up to, and including, 1995/96 these rebates were included as part of housing benefits.

Up to, and including 2001/02, the figures for local taxes also included charges made by water authorities for water, environmental and sewerage services. From 2002/03, charges made by water authorities were treated as charges for a service rather than a tax, so the figures for council tax and Northern Ireland rates from 2002/03 onwards are not strictly comparable with those for local taxes up to and including 2001/02.

The tax estimates are based on the amount deducted from the last payment of employment income and pensions, and on the amount paid in the last 12 months in respect of income from self-employment, interest, dividends and rent. The income tax payments recorded will therefore take account of a household's tax allowances, with the exception of tax credits and life assurance premium relief. Where households are eligible for either of these reliefs, deductions are made from recorded income tax payments.

Households with higher incomes paid both higher amounts of direct tax and higher proportions of their income in direct tax. The top quintile group paid an average of £19,700 per household in direct taxes in 2010/11. In contrast, the direct tax bill for households in the bottom quintile group was around £1,300 per year. As a result, direct taxes reduced inequality of income, that is, they were progressive. The top quintile group paid 23.6 per cent of their gross income in direct taxes, while the bottom quintile group paid 10.5 per cent as shown in **Table B**.
### TABLE B (Reference Table 3): Direct taxes as a percentage of gross income for ALL households by quintile groups, 2010/11

<table>
<thead>
<tr>
<th>Quintile groups of ALL households&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Bottom</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Top</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percentages</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct taxes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income tax&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3.4</td>
<td>5.7</td>
<td>8.8</td>
<td>12.3</td>
<td>17.1</td>
<td>12.6</td>
</tr>
<tr>
<td>Employees' National Insurance Contributions</td>
<td>1.5</td>
<td>2.7</td>
<td>4.0</td>
<td>5.4</td>
<td>4.7</td>
<td>4.3</td>
</tr>
<tr>
<td>Council tax &amp; Northern Ireland rates&lt;sup&gt;3&lt;/sup&gt;</td>
<td>5.6</td>
<td>4.0</td>
<td>3.5</td>
<td>2.8</td>
<td>1.8</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>All direct taxes</strong></td>
<td>10.5</td>
<td>12.5</td>
<td>16.3</td>
<td>20.6</td>
<td>23.6</td>
<td>19.7</td>
</tr>
</tbody>
</table>

**Table source:** Office for National Statistics

**Table notes:**
1. Households are ranked by equivalised disposable income, using the modified-OECD scale.
2. After deducting tax credits and tax relief at source on life assurance premiums.
3. After deducting discounts, council tax benefits and rates rebates.

**Download table**

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While direct taxes are progressive when taken as a whole, some direct taxes are progressive, whereas others are regressive. For example, Income tax is progressive. Households at the lower end of the income distribution pay smaller amounts of income tax as a proportion of gross income compared with higher income households. This is because this tax is not paid at all on the first part of income and higher rates of income tax are paid on higher incomes. In 2010/11 the additional 50 per cent income tax rate is included along with the Personal Allowance reduction for income greater than £100,000. These have had little impact on the overall 2010/11 estimates, due to the relatively small proportion of households with incomes above this level. Information on Income Tax rates and allowances for 2010/11 can be found on the [HMRC website](#).

The proportion of gross income paid in National Insurance Contributions (NICs) rises with income, although only until the fourth quintile group. In 2010/11, employees’ NICs were levied at 11 per cent on weekly earnings from £110 to £844 and at 1 per cent above this. Thus, incomes above the higher
threshold of £844 per week are subject to a much lower rate than for incomes between £110 and £844 per week. As a result, NICs are progressive only up until the fourth quintile group.

In contrast, council tax (and domestic rates in Northern Ireland) is regressive, even after taking into account council tax benefits and rates rebates. Although households in the lower part of the income distribution pay smaller absolute amounts - average net payments by the bottom fifth of households are half those of the top fifth - when expressed as a proportion of gross income, the burden decreases as income rises. Council tax in Great Britain and domestic rates in Northern Ireland represented 5.6 per cent of gross income for those in the bottom fifth but only 1.8 per cent for those in the top fifth.

Disposable income is equilised to rank households from richest to poorest. Equilisation is a process that makes adjustments to incomes, so that households with different compositions can be analysed in a sensible way. This reflects the common sense notion that, in order to enjoy a comparable standard of living, a household of, for example, three adults will need a higher level of income than a household of one person.

This analysis uses the modified-OECD scale to equilise household incomes. It was proposed by Hagenaars, De Vos and Zaidi in 1994 for use across the world and has been applied to a number of UK Government sources, such as the Households Below Average Income (HBAI) series. The modified-OECD scale usually assigns a weight of 1.0 for the first adult in a household, 0.5 for each additional adult and a weight of 0.3 for each child (aged 0–14 years).

However, in this analysis the modified-OECD scale has been rescaled so that a two adult household equivalence value is 1.0. This makes it easier to compare with data which uses the McClements equivalence scale but makes no difference to the overall results (see below for more details about the McClements scale).

The modified-OECD scale in this analysis uses the following weights:

**Weights for modified OECD scale to equilise household incomes**

<table>
<thead>
<tr>
<th>Type of household member</th>
<th>Modified-OECD Equivalence value</th>
</tr>
</thead>
<tbody>
<tr>
<td>First adult</td>
<td>0.67</td>
</tr>
<tr>
<td>Second and subsequent adults</td>
<td>0.33 (per adult)</td>
</tr>
<tr>
<td>Child aged 14 and over</td>
<td>0.33</td>
</tr>
<tr>
<td>Child aged 13 and under</td>
<td>0.2</td>
</tr>
</tbody>
</table>

The values for each household member are added together to give the total equivalence number for that household. This number is then used to divide disposable income for that household to give
equivalised disposable income. For example, take a household that has a married couple with two children (aged six and nine) plus one adult lodger. The household's equivalence number is $0.67 + 0.33 + 0.20 + 0.20 + 0.33 = 1.73$. The household's disposable income is £20,000, and so its equivalised disposable income is £11,561 (£20,000/1.73).

Equivalent disposable income is used to produce the single ranking which is applied in all the tables in this analysis (apart from the Gini coefficients which have to be ranked afresh for each different definition of income).

Historically, the equivalence scale used in this analysis was the McClements scale (before housing costs are deducted). The scales (separate ones for before and after housing costs) were developed by Dr L D McClements at the Department of Health and Social Security (DHSS) in the mid-1970s, based on expenditure data from the 1971 and 1972 Family Expenditure Survey. However, to allow for comparability with other data sources which use the modified-OECD scale, this analysis adopted the modified-OECD scale from the 2009/10 article.

It is important to note that most monetary values shown in the article and tables are ordinary (that is, un-equivalised) £ per year, not equivalised £ per year. Where equivalised values do appear (for example, the quintile points in 14 of the Reference Tables), they are shown in italics.

**Post-tax income**

The next step is to deduct indirect taxes to give post-tax income.

These types of taxes can be divided into two key types; those on final goods and services and those on intermediate goods. Final goods and services are those that are sold to final users (in this case household consumers), while intermediate goods are those that are used in the production of final goods. For example, in the case of a company importing washers to produce water taps to sell to consumers, the washer is the intermediate good and the tap is the final good. Throughout this analysis we assume that the incidence of intermediate taxes is born by the consumer who purchases the final good (in this case, households). We assume that companies pass on the full cost of intermediate taxes to the consumer in the price of the final good. In the above example the company would pass on any import duties on the washer to the consumer of the tap.

Indirect tax on final consumer goods and services include:

- Duties on alcoholic drinks, tobacco, petrol, oil, betting,
- Value Added Tax (VAT),
- Customs (import) duties,
- Motor vehicle duties,
- Air passenger duty,
- Insurance premium tax,
- Driving licences,
- Television licences,
- Stamp duties,
- Camelot: payments to National Lottery Distribution Fund.
Taxes levied on final goods and services are assumed to be fully incident on the consumer, and can be imputed from a household’s LCF expenditure record. For example, the amount of VAT that is paid by the household is calculated from the household’s total expenditure on goods and services which are subject to VAT. Some goods and services are exempt meaning they are out of the conceptual scope of vatable goods and services. There are three rates of VAT; standard, reduced, and zero. Most goods and services are taxed at the standard rate of VAT whereas others, such as gas and electricity for the home, children’s car seats, and some energy-saving materials, are at a reduced rate. Some goods and services, which include most (but not all) foods, children’s clothes, and books, are zero rated.

In the period 2010/11 there were two different standard rates. These have been incorporated into the results according to when (in the household diary) the purchase was made. The different rates are as follows:

**VAT rates April 2010 to March 2011**

<table>
<thead>
<tr>
<th>VAT rate</th>
<th>April to December 2010</th>
<th>January to March 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>17.5</td>
<td>20</td>
</tr>
<tr>
<td>Reduced</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Zero</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

To illustrate how the VAT is calculated here are three examples which could be taken from householders expenditure diaries:

**Standard rate**

- A household spends £125.00 on a garden shed which is at the standard rate of 20% VAT  
  The cost of the shed excluding VAT is therefore £104.17 (125.00/1.2)  
  The VAT is £20.83 (125.00-104.17)

The household therefore pays **£20.83** in VAT on this purchase.

**Reduced rate**

- A household spends £125.00 on a solar panel which is at the reduced rate of 5% VAT  
  The cost of the solar panel excluding VAT is therefore £119.05 (125.00/1.05)  
  The VAT is **£5.95** (£125.00-119.05)

The household therefore pays **£5.95** in VAT on this purchase.
Zero rate

- A household spends £1.20 (120 pence) on bread which is zero rated VAT
  
  The cost of the bread excluding VAT is £1.20 (120 /1.0)

  The VAT is £0 (£1.20-1.20)

The household therefore pays £0 in VAT on this purchase.

In the case of the purchase of second hand cars, the price is in part determined by the prices of new cars because as VAT is levied on new cars, VAT also affects the price of second-hand cars (and is therefore assumed to be incident on the purchasers of both).

In allocating taxes, expenditures recorded in the LCF on products such as alcoholic drinks, tobacco, ice cream, soft drinks and confectionery are grossed up to allow for the known under-recording of these items in the sample. The true expenditure in each case is assumed to be proportional to the recorded expenditure. This approach has its drawbacks because there is some evidence to suggest that heavy drinkers, for example, are under-represented in the LCF.

The incidence of stamp duty on house purchase of an owner-occupying household has been taken as the product of the hypothetical duty payable on buying their current dwelling (estimated from valuations given in the LCF) and the probability of a household of that type moving in a given year (estimated from the General Household Survey).

Indirect taxes on intermediate goods and services include:

- Rates on commercial and industrial property,
- Motor vehicle duties,
- Duties on hydrocarbon oils,
- Employers’ contributions to National Insurance, the National Health Service, the industrial injuries fund and the redundancy payments scheme,
- Customs (import) duties,
- Stamp duties,
- VAT,
- Independent Commission franchise payments,
- Landfill tax,
- Consumer Credit Act fees.

As discussed above, the incidence of intermediate taxes are born by the consumer of the final good. In this analysis only taxes on goods and services consumed by households are included. The allocations between different categories of consumers’ expenditure are based on the relation between intermediate production and final consumption using estimated input-output techniques. This process is not an exact science, and many assumptions have to be made. Some analyses, such as that by Dilnot, Kay and Keen ‘Allocating Taxes to Households: A Methodology’, suggest that the taxes could be progressive rather than regressive if different incidence assumptions were to be used.
Because indirect taxes are taxes that are paid on items of expenditure, the amount of indirect tax each household pays is determined by their expenditure rather than their income. While the payment of indirect taxes can be expressed as a percentage of gross income, in the same way as for direct taxes shown in Table B, this can be potentially misleading. This is because some households have an annual expenditure that exceeds their annual income, particularly those towards the bottom of the income distribution. For these households, their expenditure is not being funded entirely from income. It is possible that, for these households, expenditure is a better indicator of standard of living than income. Therefore, payment of indirect taxes is also presented as a percentage of expenditure to give a more complete picture of the impact of indirect taxes.

Carrera (2010) presented some of the most common alternative methods that were used to fund expenditure in households where their expenditure was at least twice the level of their disposable income. For these households the most common source of funds was savings, followed by credit/store cards and then loans. This may be due to a number of reasons. For example, the bottom decile in particular includes some groups who have, or report, very little income (for example people not currently in employment, students and some self-employed people). For some people, this spell of very low income may only be temporary and, during this period, they may continue with previous patterns of spending. Secondly, some types of one-off receipts are not included as income in this analysis, for example, inheritance and severance payments. Finally, the income and expenditure data are measured in different ways in the LCF, and could be affected by measurement errors of different kinds.

When expressed as a percentage of expenditure, as shown in Table C, the proportion paid in indirect tax tends to be lower for households at the top of the distribution compared with those lower down (16.1 per cent for the top quintile compared with 20.5 per cent for the bottom quintile). The higher percentage of expenditure by low income groups on tobacco (2.3 per cent of total expenditure for the bottom quintile group compared with 0.4 per cent for the top quintile group) and on the ‘other indirect taxes’ which include television licences, stamp duty on house purchases and the Camelot National Lottery Fund (7.2 per cent compared with 5.4 per cent, respectively) accounts for part of this difference.
TABLE C (Reference Table 3): Indirect taxes as a percentage of gross income, disposable income and expenditure for ALL households by quintile groups, 2010/11

<table>
<thead>
<tr>
<th></th>
<th>Quintile groups of ALL households(^1)</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottom</td>
<td>2nd</td>
</tr>
<tr>
<td>(a) Percentages of gross income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect taxes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAT</td>
<td>10.5</td>
<td>7.2</td>
</tr>
<tr>
<td>Duty on alcohol</td>
<td>1.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Duty on tobacco</td>
<td>3.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Duty on hydrocarbon oils &amp; vehicle excise duty</td>
<td>2.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Other indirect taxes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All indirect taxes</td>
<td>9.7</td>
<td>6.5</td>
</tr>
<tr>
<td>(b) Percentages of disposable income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAT</td>
<td>11.8</td>
<td>8.3</td>
</tr>
<tr>
<td>Duty on alcohol</td>
<td>1.8</td>
<td>1.2</td>
</tr>
<tr>
<td>Duty on tobacco</td>
<td>3.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Duty on hydrocarbon oils &amp; vehicle excise duty</td>
<td>3.1</td>
<td>2.6</td>
</tr>
</tbody>
</table>
On the other hand, the impact of indirect taxes, as a proportion of gross or disposable income, declines much more sharply as income rises. So for example, VAT accounted for 11.8 per cent of disposable income for households in the bottom quintile, falling to 6.1 per cent for households in the top quintile. There were similar patterns for the other indirect taxes shown in Table C and this overall pattern was also consistent when these taxes were calculated as a proportion of gross income. This
is because, those in higher income groups tend to channel a larger proportion of their income into places which do not attract indirect taxes, such as savings and mortgage payments. For this reason, and those already mentioned regarding high expenditure households, indirect taxes expressed as a proportion of income appear more regressive than when expressed as a proportion of expenditure.

The measure of expenditure used in this analysis has been calculated to be comparable to the definition of disposable income. For instance, because the imputed benefit of company cars and beneficial loans will have boosted the figure for disposable income, these items have been added to this expenditure measure. Expenditure on alcohol, tobacco and confectionery has been grossed up for under-recording in line with the treatment of the indirect taxes on these items. Payments deemed to be made out of income such as superannuation, regular savings, mortgage repayments and so on, have been included and adjusted where necessary but not items such as lump sum capital payments in line with the exclusion of capital gains and windfalls from income.

**Final income**

This analysis adds notional benefits in kind provided to households by the Government for which there is a reasonable basis for allocation to households, to obtain final income. There are some items of Government expenditure, such as capital expenditure and expenditure on defence and on the maintenance of law and order, for which there is no clear conceptual basis for allocation, or for which we do not have sufficient information to make an allocation. The benefits in kind allocated are:

- National Health Service,
- State education,
- School meals and Healthy Start Vouchers (Including nursery milk),
- Housing subsidy,
- Railway travel subsidy,
- Bus travel subsidy (including concessionary fares schemes).

**National Health Service**

In the 2009/10 analysis there was a switch to more timely health cost data. This means that the time series for the National Health Service are not directly comparable with previous years. A methodological paper explaining these and other changes in more detail, including a consistent time series for benefits in kind from 2005/06 is planned for publication later in 2012.

The current method uses data that are available on the average cost to the Exchequer of providing the various types of health care - hospital inpatient/outpatient care, GP consultations, and pharmaceutical services, and so on. Each individual in the LCF is allocated a benefit from the National Health Service according to the estimated average use made of these various types of health service by people of the same age and sex, and according to the total cost of providing those services. The benefit from maternity services is assigned separately to those households containing children under the age of 12 months. No allowance is made for the use of private health care services. The assigned benefit is relatively high for young children, low in later childhood and through the adult years until it begins to rise from late middle age onwards. For all households this benefit is lower in the top two quintiles. This pattern is a reflection of the demographic composition of households. Studies by Sefton (2002) have attempted to allow for variations in use of the health
service according to socio-economic characteristics. Due to data limitations, this analysis does not take account of these variations in the use of the health service. The benefit given to households for the NHS is estimated to be equivalent to 12 per cent of the average post-tax income for non-retired households, or an average of £3,500 per year. Table D shows the benefits in kind for non-retired households in 2010/11. The main sources of benefits in kind for these households are education and the National Health Service.

This table also shows that the picture for retired households is different as these households make far less use of state education and much more use of health services. The benefit given to non-retired households for the NHS is estimated to be equivalent to 39 per cent of the average post-tax income, or an average of £5,600 per year. Around 95 per cent of the benefits in kind allocated to retired households were for the National Health Service, whereas this was only 46 per cent for non-retired households.

Education

Education benefit is estimated from information provided by the Department for Education, Department for Business, Innovation and Skills (BIS), Welsh Government and local authorities, of the cost per full-time equivalent pupil or student in maintained special schools, nursery, primary and secondary schools, universities, and other further education establishments.

The value of the benefits attributed to a household depends on the number of people in the household recorded in the LCF as receiving each kind of state education (students away from the household are excluded). The estimates serve as a proxy for the unit cost per full-time equivalent pupil per year in the UK. There is just one estimate for secondary school children available although it is conceded that the cost climbs steeply with the age of the pupil. Therefore, in this analysis, there is a split in the allocation of per capita expenditure on children between those aged 11 and 15 at the beginning of the school year, and those 16 and over at secondary schools. No benefit is allocated for pupils attending private schools.

Table D shows that non-retired households in the lower quintile groups received the highest benefit from education. This is due to the relatively high number of children in this part of the distribution. In addition, children in households in the higher quintiles are more likely to be attending private schools and an allocation is not made in these cases. The benefit given to households for education is estimated to be equivalent to 13 per cent of the average post-tax income for non-retired households, or an average of £3,800 per year. For retired households this is estimated to be 1 per cent and £116 respectively.
### TABLE D (Reference Tables 10, 18A): Benefits in kind for NON-RETIRED and RETIRED households by quintile groups, 2010/11

<table>
<thead>
<tr>
<th>Quintile groups of households</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottom</td>
</tr>
<tr>
<td><strong>Non-retired households</strong></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>5,187</td>
</tr>
<tr>
<td>National health service</td>
<td>3,364</td>
</tr>
<tr>
<td>Housing subsidy</td>
<td>52</td>
</tr>
<tr>
<td>Rail travel subsidy</td>
<td>47</td>
</tr>
<tr>
<td>Bus travel subsidies</td>
<td>67</td>
</tr>
<tr>
<td>School meals and Healthy Start Vouchers</td>
<td>295</td>
</tr>
<tr>
<td><strong>Retired Households</strong></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>88</td>
</tr>
<tr>
<td>National health service</td>
<td>5,484</td>
</tr>
<tr>
<td>Housing subsidy</td>
<td>16</td>
</tr>
<tr>
<td>Rail travel subsidy</td>
<td>25</td>
</tr>
<tr>
<td>Bus travel subsidies</td>
<td>123</td>
</tr>
</tbody>
</table>

**Average per household (£ per year)**

1. Quintile group numbers may not sum due to rounding.
2. Healthy Start Vouchers data not available for retirement.
Quintile groups of households

<table>
<thead>
<tr>
<th>Quintile groups of households</th>
<th>Bottom</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Top</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Start Vouchers²</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>All benefits in kind</td>
<td>5,738</td>
<td>5,660</td>
<td>5,952</td>
<td>6,156</td>
<td>5,972</td>
<td>5,896</td>
</tr>
</tbody>
</table>

**Table source:** Office for National Statistics

**Table notes:**
1. Households are ranked by equivalised disposable income, using the modified-OECD scale.
2. Including nursery milk.

**Download table**

[XLS format](#)

**School Meals and Healthy Start Vouchers**

The value of free school meals is based on their costs to the public authorities. Taking administrative data on the quantity of school meals and the cost per unit, an aggregate cost is calculated. This aggregate cost is then divided amongst those children who are identified in the LCF as being eligible for free school meals. In 2009/10 welfare milk was replaced by the nursery milk scheme, Healthy Start Vouchers were also introduced. Information on Healthy Start Vouchers is collected directly in the LCF. The addition of Healthy Start Vouchers has resulted in an increase in this benefit in 2010/11, particularly for households in the bottom quintile group. As the scheme was only introduced in the last quarter of the 2009/10 financial year the full effect of this benefit was not fully reflected in this analysis until 2010/11. This accounts for the noticeable increase in the benefit between 2009/10 and 2010/11. Free school meals, Healthy Start Vouchers and nursery milk go predominantly to lower income groups, where children are more likely to have school meals provided free of charge.

**Housing Subsidies**

In this analysis, public sector tenants are defined to include the tenants of local authorities, Scottish Homes, Northern Ireland Housing Executive (NIHE), housing associations and registered social landlords. The total housing subsidy includes the contribution from central Government to the housing revenue accounts of local authorities, and grants paid to Scottish Homes, the NIHE, housing associations and registered social landlords. Within Greater London, the rest of England, Wales, Scotland and Northern Ireland each public sector tenant has been allocated a share of the region’s total relevant subsidy based on the council tax band of the dwelling and the weighted average (by type of property) property price within each country or region. Housing subsidy does not include rent rebates and allowances or local tax rebates. It fell in the years leading to 2006/07, as the proportion of households in public sector, housing association and Registered Social Landlord housing declined.
Travel Subsidies

Travel subsidies cover the support payments made to bus and train operating companies. The use of public transport by non-retired households is partly related to the need to travel to work and therefore to the number of economically active people in a household. This results in estimates of these subsidies being higher for households in higher income quintiles. This pattern is also due to London and the South East having higher levels of commuting by public transport together with higher than average household incomes. Rail subsidy is allocated to households based on their spending on rail travel taken from the LCF. The level of subsidy to those living in London and the South East is calculated separately from the rest of the UK, reflecting higher levels of subsidy for London transport and the assumption that a higher number of households in the South East will commute into London and thus benefit from this subsidy. In making these allocations, allowances are also made for the use of rail travel by the business sector, tourists and the institutional part of the personal (household) sector (for example, people who do not live in private households; that is, prisoners, or people in care homes). Bus travel is calculated in a similar way but additional levels of benefit are allocated to those household containing individuals who indicate in the LCF that they hold a concessionary bus pass.

From 2010/11 the figures for rail travel subsidy take into account the Government grant to the infrastructure operator (Network Rail), which enables Network Rail to lower the charges levied on each train operating company, using data supplied and published by the Department for Transport (DFT). This grant was apportioned regionally according to the benefit the train operating company’s gained from reduced fees. This results in a more comprehensive value of the total rail subsidy; however, due to this methodological change, the rail subsidy figures are not directly comparable with earlier years’ analysis. The average value attributed to rail and bus travel subsidies in 2010/11 was £174.

Notes

1. A methodological paper further explaining changes to benefits in kind estimates, including a consistent time series for benefits in kind from 2005/06 is planned for publication later in 2012.

Measuring inequality

Inequality of household income can be illustrated graphically using a Lorenz curve. A Lorenz curve is created by ranking households from poorest to richest and graphing the cumulative share of household income and the cumulative share of households, as proportions of the total household income and the total number of households, respectively. The cumulative share of households gives a 45 degree line. When the cumulative share of income also gives a 45 degree line, this represents a situation where income is equally divided amongst all households. Higher income inequality is represented by an increase in the area between the cumulative share of household income curve and the cumulative share households curve. Where all the area under the 45 degree line is shaded, income is at its most unequal – all income is held by one household.

Using data from this analysis, Figure B shows Lorenz curves for equivalised disposable income (using the modified-OECD scale) in 2009/10 and 2010/11 and shows that income inequality
increased marginally over the period, following a fall in the previous period of 2008/09 to 2009/10. For example, in 2010/11, the bottom 50 per cent of households received 30 per cent of income compared to 31 per cent in 2009/10.

If the lines for the respective years crossed, the situation would be less clear from a visual inspection alone. At the points where the more recent line was closer to the 45 degree line than the earlier line it could be said that for this section of the income distribution inequality had reduced over the time period. Similarly, where the more recent line was further away from the 45 degree line than the earlier line it could be said that for this section of the income distribution inequality had increased. Thus, from a visual inspection it would not be clear whether overall inequality had reduced or increased over the time period.

**Figure B: Lorenz curve by equivalised disposable income for ALL households, 2009/10 and 2010/11**

![Lorenz curve](image)

Source: Office for National Statistics

**Notes:**

1. Households are ranked by equivalised disposable income, using the modified-OECD scale.
Figure C shows that the proportion of aggregate income held by most of the bottom nine deciles fell between 2009/10 and 2010/11 where the percentage of aggregate income held by the top decile group increased over the same period. Generally speaking, the richest households became relatively (although not necessarily absolutely) better off over the period, while most other households became relatively (although not necessarily absolutely) worse off.

**Figure C: Percentage of equivalised disposable income held by each decile, 2009/10 and 2010/11**

It is possible to summarise a Lorenz curve in a single figure – a Gini coefficient. This value is useful to summarise and highlight changes to the level of inequality. Using the Lorenz curve, the Gini coefficient is calculated by taking the ratio of the shaded area and the area below the 45 degree line of perfect equality (the 45 degree line triangle). A distribution of perfectly equal incomes has a Gini coefficient of zero (or zero per cent). As inequality increases (and the Lorenz curve bellies
out), so does the Gini coefficient, until it reaches its maximum value of 1 (or 100 per cent). The Gini coefficient for disposable income in 2010/11 was 34.0 per cent, a very slight increase on its 2009/10 value. Thus, the Gini coefficient also shows that inequality increased over the period; though it is broadly in line with the longer term trend.

The small increase in the Gini coefficient is associated with an increase in average disposable incomes towards the upper end of the income distribution, whereas there has only been more modest increases in disposable incomes in cash terms (and falls in real terms) further down the distribution. The increase in incomes at the top end of the distribution was largely driven by increases in original income.

**Inequality in Retired and Non–Retired Households**

**Table E** shows that original income is more unequal for retired households than for non-retired households (Gini coefficients of 60.9 per cent and 45.6 per cent respectively). This is because the majority of those who are retired have little income from wages and salaries as they are not active in the labour market. In contrast, the Gini coefficient for gross income is markedly reduced among retired households (27.9 per cent) and is smaller than the equivalent Gini coefficient for non-retired households (37.3 per cent). This is primarily because of the addition of the state pension and pension credit. Inequality as measured by the Gini coefficient is lower for retired households at both the disposable and post-tax income stages than for non-retired households.

In all Gini coefficients shown, income measures are equivalised using the modified-OECD scale. Strictly speaking, it could be argued that the equivalence scales used here are only applicable to disposable income because this is the only income measure relating directly to spending power. Since the scales are often applied, in practice, to other income measures, it is considered appropriate to use them to equivalise original, gross and post-tax income for the purpose of producing Gini coefficients. However, it is not felt to be appropriate to equivalise the final income measure because this contains notional income from benefits in kind (such as that from the National Health Service): the equivalence scales used in this analysis are based on actual household spending and do not, therefore, apply to such items as notional income.

**TABLE E (Reference Tables 2, 5,11): Gini coefficients of households, 2010/11**

<table>
<thead>
<tr>
<th>Percentages</th>
<th>Original income</th>
<th>Gross income</th>
<th>Disposable income</th>
<th>Post-tax income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-retired</td>
<td>45.6</td>
<td>37.3</td>
<td>34.6</td>
<td>38.0</td>
</tr>
<tr>
<td>households</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired households</td>
<td>60.9</td>
<td>27.9</td>
<td>26.0</td>
<td>29.8</td>
</tr>
<tr>
<td>All households</td>
<td>52.2</td>
<td>37.3</td>
<td>34.0</td>
<td>38.0</td>
</tr>
</tbody>
</table>
The effectiveness of taxes and benefits in reducing inequality can be investigated by looking at the changes in the Gini coefficients at each stage of the redistributive process. As illustrated in Figure D, cash benefits had the largest effect in reducing inequality of both retired and non-retired households, leading to a 33.0 and 8.2 percentage point reduction in the relative Gini coefficients, respectively. As stated above, the primary reason for the large effect on the inequality of incomes of retired households is the addition of income from the state pension and pension credits. Direct taxes reduced inequality for both non-retired and retired households by 2.8 and 1.9 percentage points, respectively. Indirect taxation increased inequality by 4.1 percentage points for non-retired and 3.8 percentage points for retired households. Measured in these terms, taken as a whole, in 2010/11 the UK tax and benefits system reduced inequality. Progressive direct taxes and cash benefits outweighed slightly regressive indirect taxation.

**Figure D: (Reference Tables 2, 5, 11): Percentage point reduction in Gini coefficient because of cash benefits and taxes, 2010/11**

Source: Office for National Statistics

Notes:

1. Households are ranked by equivalised disposable income, using the modified-OECD scale.
Changes in inequality over time

Figure E shows how the Gini coefficients for the various measures of income have changed since 1983. By looking at these data it is possible to see some underlying trends.

Inequality of disposable income increased in the late 1980s and, to a lesser extent, during the late 1990s during periods of faster growth in income from employment, and fell in the early 1990s during a period of slower growth in employment income. Households which typically benefit the most during periods of growth in employment income are those in the middle and upper part of the income distribution. This is due to there being a much higher proportion of economically active adults in higher quintile households compared with households in the lower part of the income distribution. Therefore during periods of growth the gap between the poorest and richest increases and inequality rises.

Figure E (Reference Figure 5): Gini coefficients, 1977 to 2010/11

Source: Office for National Statistics

Notes:
1. Ranking and calculation are based on each equivalised income measure presented, using the modified-OECD scale.
Between 2001/02 and 2004/05 income inequality fell. Over this period there was a slight fall in inequality of original income, due to faster growth in income from earnings and self-employment income at the bottom end of the income distribution. Policy changes such as the increases in the national minimum wage, increases in tax credit payments, and the increase in National Insurance contributions in 2003/04 also resulted in small reductions in inequality of disposable and post-tax income.

Since 2001/02 changes in income inequality, as measured by the Gini coefficient have been relatively small, with the longer term trend being broadly flat. Between 2004/05 and 2006/07 there was a slight increase in inequality, due to increased inequality of original income. It was due, in part, to the faster rate of growth of wages and salaries and investment income in the upper part of the distribution compared with the low. The Gini coefficient for disposable income fell slightly between 2006/07 and 2007/08 and has remained fairly constant since 2007/08 at around 34 per cent. The Gini coefficients for original income and gross income have both remained broadly unchanged since 2009/10 and 2010/11. However, the Gini coefficient for post-tax income has increased from 37.1 per cent in 2009/10 to 38.0 per cent in 2010/11. This reflects changes in the amounts paid by indirect taxes by households.

**Comparison with Households Below Average Income (HBAI)**

Figure F shows the 2010/11 Gini coefficients for disposable income from the Effects of taxes and benefits (ETB) compared with Households Below Average Income (HBAI).
Figure F (Reference Figure 6): Gini coefficients from the Effects of Taxes and Benefits (ETB) analysis (disposable income) and Households Below Average Income (HBAI) (BHC income)

Source: Office for National Statistics

Notes:
1. Households are ranked by equivalised disposable income, using the modified-OECD scale.
2. Before housing costs.

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[XLS XLS format (35 Kb)]

HBAI is published each year by the Department for Work and Pensions (DWP) and provides analysis of the income distribution based on data from the Family Resources Survey.

Due to HBAI being based on a different survey, along with some methodological differences (for example HBAI measures inequality on an individual basis whereas ETB measures inequality on a household basis), HBAI and ETB estimates can differ slightly from each other. However, historical trends are similar.

Characteristics of households

Some types of household are more likely to be located in one part of the income distribution than another, hence it is possible to provide analysis of how different household characteristics may affect households’ incomes. Information about the characteristics of households in different income groups is shown in Table F. Household size does not vary much across the income distribution, with an average of between 2.2 and 2.5 people per household in each quintile group in 2010/11. However,
there are some notable differences. For example there are fewer children in the upper part of the income distribution. Men are slightly more likely to be in the upper part of the distribution, while women are spread more evenly across the distribution. Households in higher income groups also contain more economically active people; in 2010/11 the top fifth of households had two and a half times as many economically active people as the bottom fifth.

Of those households in the top quintile group, 55 per cent were one or two adult non-retired households without children. In fact, childless two adult non-retired households made up 41 per cent of the total households in the top quintile group. For two adult households with children, the position in the income distribution tends to vary according to the number of children. Households with more children, unless there is a corresponding increase in income, will have on average, lower equivalised incomes to reflect the additional demand on resources.

Non-retired households with one adult and one or more children are concentrated in the lower groups. Whereas these households made up 5 per cent of all households, they constituted 13 per cent of the bottom quintile group and only 1 per cent of the top two quintile groups.

Retired households are over-represented at the lower end of the income distribution. Although 27 per cent of all households were retired, these households made up 35 and 43 per cent of the bottom and second quintile groups, respectively, but only 9 per cent of the top group.
### Table F (Reference Table 15A): Household characteristics of quintile groups of ALL households, 2010/11

<table>
<thead>
<tr>
<th>Quintile groups of all households</th>
<th>Bottom</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Top</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>2.21</td>
<td>2.25</td>
<td>2.37</td>
<td>2.47</td>
<td>2.39</td>
<td>2.34</td>
</tr>
<tr>
<td>Adults</td>
<td>1.61</td>
<td>1.71</td>
<td>1.86</td>
<td>2.00</td>
<td>1.96</td>
<td>1.83</td>
</tr>
<tr>
<td>Men</td>
<td>0.72</td>
<td>0.79</td>
<td>0.89</td>
<td>1.04</td>
<td>1.02</td>
<td>0.89</td>
</tr>
<tr>
<td>Women</td>
<td>0.89</td>
<td>0.93</td>
<td>0.97</td>
<td>0.97</td>
<td>0.95</td>
<td>0.94</td>
</tr>
<tr>
<td>Children</td>
<td>0.60</td>
<td>0.54</td>
<td>0.52</td>
<td>0.47</td>
<td>0.42</td>
<td>0.51</td>
</tr>
<tr>
<td>Economically active people</td>
<td>0.68</td>
<td>0.81</td>
<td>1.17</td>
<td>1.56</td>
<td>1.70</td>
<td>1.19</td>
</tr>
<tr>
<td>Retired people</td>
<td>0.48</td>
<td>0.63</td>
<td>0.50</td>
<td>0.34</td>
<td>0.20</td>
<td>0.43</td>
</tr>
<tr>
<td><strong>Household type (percentages)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>35</td>
<td>43</td>
<td>31</td>
<td>18</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>Non-retired</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 adult without children</td>
<td>19</td>
<td>13</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>2 adults without children</td>
<td>10</td>
<td>10</td>
<td>19</td>
<td>29</td>
<td>41</td>
<td>22</td>
</tr>
<tr>
<td>1 adult with children</td>
<td>13</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2 adults with children</td>
<td>16</td>
<td>18</td>
<td>20</td>
<td>23</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>3 or more adults(^2)</td>
<td>7</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>All household types</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
### Quintile groups of all households

<table>
<thead>
<tr>
<th>Household tenure (percentages)</th>
<th>Bottom</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Top</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rented</td>
<td>46</td>
<td>48</td>
<td>35</td>
<td>20</td>
<td>15</td>
<td>33</td>
</tr>
<tr>
<td>Owner occupied</td>
<td>54</td>
<td>52</td>
<td>65</td>
<td>80</td>
<td>85</td>
<td>67</td>
</tr>
</tbody>
</table>

### Employment status of chief economic supporter (percentages)

<table>
<thead>
<tr>
<th>Employment status</th>
<th>Bottom</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Top</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-employed</td>
<td>7</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Full-time employee</td>
<td>9</td>
<td>26</td>
<td>43</td>
<td>64</td>
<td>71</td>
<td>43</td>
</tr>
<tr>
<td>Part-time employee</td>
<td>13</td>
<td>12</td>
<td>9</td>
<td>7</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Unemployed</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Unoccupied and under minimum NI age</td>
<td>26</td>
<td>14</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Retired/unoccupied over minimum NI age</td>
<td>33</td>
<td>41</td>
<td>31</td>
<td>17</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

Table source: Office for National Statistics

Table notes:
1. Households are ranked throughout by their equivalised disposable incomes, using the modified-OECD scale.
2. With or without children.

Download table

[XLS format](472 Kb)
As a proportion of the total, 33 per cent of households rented their primary living accommodation in 2010/11 and this group were more likely to be in the bottom two quintile groups. Conversely, those who own their own household were more likely to be located in the top two quintile groups, with 85 per cent of households being owner occupiers in the top quintile group, compared to 67 per cent overall.

In this analysis, the chief economic supporter is the head of the first benefit unit within the household, as defined by the LCF. Those who are self employed and full-time employed were more likely to be in the top two income quintile groups. Those who were part-time employed, unemployed or unoccupied and under the minimum National Insurance age were all more likely to be located in the bottom two quintile groups. Households where the chief economic supporter is unemployed made up 11 per cent of the bottom quintile group compared to 1 per cent of households in the top quintile. Households where the chief economic supporter is retired were more likely to be in the bottom three quintiles, constituting 33 and 41 per cent of the bottom two quintiles, respectively, compared to 26 per cent of the overall household population.

Background notes

1. General assumptions

This analysis provides only a rough guide to the kinds of household which benefit from Government expenditure, and by how much, and to those which finance it. Apart from the fact that large parts of expenditure and receipts are not allocated, the criteria used both to allocate taxes and to value and apportion benefits to individual households could be regarded as relatively simplistic.

For example, data limitations necessitate the assumption that the incidence of direct taxes falls on the individual from whose income the tax is deducted. This implies that the benefit of tax relief for a life assurance premium, for example, accrues directly to the taxpayer rather than to some other party, for instance, the seller of the policy. It also implies that the working population is not able to pass the cost of the direct tax back to employers through lower profits, or to consumers through higher prices.

In allocating indirect taxes the assumption is made that the part of the tax falling on consumers’ expenditure is borne by the households which buy the item or the service taxed, whereas in reality the incidence of the tax is spread by pricing policies and probably falls in varying proportions on the producers of a good or service, on their employees, on the buyer, and on the producers and consumers of other goods and services.

Another example is that an estimate is only available of the total financial cost of providing benefits such as education, and so it’s necessary to treat that cost as if it measured the benefit which accrues to recipients of the service. In fact, the value the recipients themselves place on the service may be very different to the cost of providing it. Moreover, there may be households in the community, other than the immediate beneficiaries, who receive a benefit indirectly from the general provision of the service.
In all of classifications, sometimes the criteria we impose are not sufficient to meet every sample household scenario. Where this occasionally occurs analysts make the best common sense judgement from the available survey data for each case.

2. Data sources

The estimates in this analysis are based mainly on data derived from the Living Costs and Food Survey (LCF), which replaced the Family Expenditure Survey (FES) from 2001/02, and was known as the Expenditure and Food Survey until 2008. The LCF is an annual survey of the expenditure and income of private households. People living in hotels, lodging houses, and in institutions such as old peoples’ homes are excluded. Each person aged 16 and over keeps a full record of payments made during 14 consecutive days and answers questions about hire purchase and other payments; children aged seven to 15 keep a simplified diary. The respondents also give detailed information, where appropriate, about income (including cash benefits received from the state) and payments of income tax. Information on age, occupation, education received, family composition and housing tenure is also obtained. The survey covers the whole 12-month period. Family Spending 2011, published on the ONS website in November 2011, shows detailed results on expenditure and income from the 2010 survey. The Family Spending report also includes an outline of the survey design.

The number of households in Great Britain responding to the LCF in 2010 was 4,929 and a further 187 households provided enough information to be included in the sample. The response rate was 50 per cent. An additional sample of 147 households covered Northern Ireland, where the response rate was 59 per cent. To count as a co-operating household, all members aged 16 and over must fill in the diaries for both weeks and give full details of income.

The LCF is designed primarily as a survey of expenditure on goods and services by households. It has been developed to gather information about the income of household members, and is an important and detailed source of income data. However, no information is collected that would enable a balance sheet of income and expenditure to be drawn up for a household over any particular period. Much expenditure relates to the two-week period after the interview, whereas many income components refer to a much longer period (such as investment income over the previous 12 months). LCF income does not include proceeds from the sale of assets (for example, a car) or windfalls such as inheritances. But recorded expenditure might reflect these items, as well as the effects of living off savings, using capital or borrowing money. Hence, there is no reason why income and expenditure should balance either for an individual household or even averaged over a group of households. Indeed, for many households in the bottom part of the income distribution, measured expenditure exceeds measured income. Moreover, the difference between income and expenditure is not necessarily a measure of savings or dissavings (where expenditure is greater than income). See How indirect taxes can be regressive and progressive for further data in income and expenditure distributions from the LCF.

The LCF data used in this analysis is grossed so that totals reflect the total population of private households in the UK. Households are assigned different initial weights. The non-response weights are then calibrated so that weighted totals match population totals, for males
and females in different age groups and for regions and countries. For more information on weighting and population totals see; Quality information.

This analysis uses a number of administrative sources to improve the quality of estimates, particularly to estimate income and benefits in kind. A full list of administrative data used in this and other ONS publications, is available in the ONS statement of administrative sources.

3. **Sampling error**

Sampling error occurs as a result of the selection of a sample to represent a population. In most analysis it is not feasible to gain data on the whole population (a notable exception would be a Census). While the LCF sample is designed to produce the 'best' estimate of the true population values for income and expenditure, a number of equal sized samples covering the population would generally produce varying population estimates. Sampling error is typically less for measures based on large groups of households and those that do not vary greatly between households. Conversely, it is largest for small groups of households, and for measures that vary considerably between households. A broad numerical measure of the amount of variability is provided by the quantity known as the standard error. To give some idea of sampling variability, the percentage standard error for average gross household income for all households is approximately 1.5 per cent, which implies a 95 per cent confidence interval of ±3.0 per cent (Table G). There will be greater sampling variability associated with estimates for decile and quintile groups, and for particular household types mainly because the sample sizes are smaller. For decile and quintile groups of given household types, the sample sizes are of course smaller still, which will increase sampling variability further.
Table G (Reference Table 32): 95 per cent confidence intervals for gross and disposable income of households, and as a percentage of the published estimate, 2010/11

<table>
<thead>
<tr>
<th></th>
<th>Gross income</th>
<th>Disposable income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower bound</td>
<td>Published estimate</td>
</tr>
<tr>
<td>All households</td>
<td>9,183</td>
<td>9,622</td>
</tr>
<tr>
<td></td>
<td>4.6</td>
<td>8,119</td>
</tr>
<tr>
<td>Bottom decile group</td>
<td>36,602</td>
<td>37,741</td>
</tr>
<tr>
<td>Mean</td>
<td>100,844</td>
<td>107,454</td>
</tr>
<tr>
<td>Top decile group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired households</td>
<td>7,841</td>
<td>8,259</td>
</tr>
<tr>
<td>Bottom decile group</td>
<td>19,330</td>
<td>20,130</td>
</tr>
<tr>
<td>Mean</td>
<td>38,286</td>
<td>47,992</td>
</tr>
<tr>
<td>Top decile group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-retired households</td>
<td>9,855</td>
<td>10,461</td>
</tr>
<tr>
<td>Bottom decile group</td>
<td>42,725</td>
<td>44,330</td>
</tr>
<tr>
<td>Mean</td>
<td>113,276</td>
<td>120,675</td>
</tr>
<tr>
<td>Top decile group</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table source: Office for National Statistics

Table notes:
1. Households are ranked by equivalised disposable income, using the modified-OECD scale.
4. **Non-sampling error**

Non-sampling error includes all sources of data error that are not as a result of the way the sample is selected. The wide definition and the nature of non-sampling error mean that it is difficult to quantify. However, areas where non-sampling error is introduced into analysis can be identified, the possible effects highlighted and steps to minimise the error implemented.

**Coverage error**

Coverage error occurs when households relevant to the population being analysed are not included within the sampling frame. The LCF draws its sample using the Small User Postal Address File (PAF). It is acknowledged that this source contains some errors in content and in coverage. A Reverse Record Check conducted by ONS in 1994 used census data to show that coverage in the PAF was 93.0 per cent. When including addresses that were incomplete, but that provided sufficient detail for an interview to be conducted, PAF coverage increased to 96.6 per cent. Three-quarters of missing addresses in 1991 were still missing in 1993 suggesting missing data was not due to a time lag. The make up of the missing addresses is unknown and the omission of these addresses could provide some bias in the estimates. ONS update the sampling frame using the PAF on a six monthly basis. Where an address is sampled that does not fit the survey parameters it is removed, for example a business address. The PAF is used as the sample frame for ONS's social surveys, therefore any error or bias will be in line with other surveys. The survey uses a complex stratified sample that draws sample characteristics from the 2001 Census. While the census is not a sample survey it does have its own sources of non-sampling error, for example non completion and incorrect response. Any bias from the Census will also be reflected in the analysis here.

**Non-response bias**

Non-response includes both households not responding at all to the survey (unit non-response) and households who participate in the survey but do not provide a response to particular questions (item non-response). If non-responders and responders have the same characteristics then there will be no bias. Respondents may not answer specific questions that households deem private or personal. This is particularly relevant for the LCF, a survey that asks a variety of questions based on household income and expenditure. The response rate to the income questions in the LCF is fairly high – where respondents do not answer income questions they are generally not included in the survey as this is a fundamental part of the LCF. Very little imputation is done for non-response to income questions. While there are a number of alternative sources of income data, such as the Family Resources Survey (FRS), all come with their own non-sampling error. Estimates from the Survey of Personal Incomes are thought to be quite robust, particularly for cases at the higher end of the income distribution.

The LCF assigns weights to cases to correct for unit non-response in the survey sample. Households are assigned different initial weights based on a comparison of response in the
2001 Family Expenditure Survey (FES) with 2001 Census-linked data. A comparison was made of the households responding in the 1991 FES with those not responding, based on information from the 1991 Census of Population (A comparison of the Census characteristics of respondents and non-respondents to the 1991 FES by K Foster, ONS Survey Methodology Bulletin No. 38, Jan 1996). Results from the study indicate that response was lower than average in Greater London, higher in non-metropolitan areas and that non-response tended to increase with increasing age of the head of the household, up to age 65. Households that contained three or more adults, or where the head was born outside the United Kingdom or was classified to an ethnic minority group, were also more likely than others to be non-responding. Non-response was also above average where the head of the household had no post-school qualifications, was self-employed, or was in a manual social class group. The data are re-weighted to compensate for the main non-response biases identified from the 1991 Census comparison. ONS has completed a similar comparative exercise, with the 2001 Census data, which resulted in an update of the non-response weights for the 2007 and subsequent EFS/LCF estimates. Another linkage study will be undertaken in the wake of the 2011 Census, which will feed into an update of the LCF weights.

A calibration weight is also calculated, this ensures that the sample is reflective of the entire population when it is grossed to create population aggregates. This also uses 2001 Census based population projections. Weighted totals match population totals, for males and females, in different age groups and for regions and countries in the UK.

Factors influencing non-response that are within the control of the ONS are the survey design and the interviewer characteristics. Any significant changes to the survey design are considered at length both to see if there is really a need for the information that is being collected and to see the effect that it will have on the burden of the survey. At present the questionnaire takes approximately 55 minutes to complete. To increase the incentive to participate, ONS provides a book of stamps with the initial invitation. Furthermore, those who complete the expenditure diary receive a small token. From January 2010 this was a £10 high street voucher (£5 for children); prior to 2010 this incentive was given in cash. The effectiveness of these measures is frequently monitored. Interviewers receive full training aimed at increasing participation and the accuracy of the data that is collected, and interviewers call at different times of the day to attempt to maximise participation from sample households. Interviewers receive reasonable quotas to ensure that they are able to work each case effectively and maximise potential participation. The LCF is conducted using Computer Assisted Personal Interviewing (CAPI) in common with all ONS Social Surveys, this helps to eliminate item non-response occurring due to routing errors in the administering of the questionnaire. Since 2001/02 proxy responses have been accepted in some cases. Proxy cases occur where one member of the households answers questions on the behalf of another member of the household. The inclusion of proxy data reduces non-response but may increase error relating the accuracy of the response to the true value. 22 per cent of data at a person level is from proxy respondents, this is approximately double the 2001/02 level.

Some of the data that are used in ROI are subject to imputation; the methodology for this is outlined throughout this paper. However, in general terms, the use of imputation is likely to result in an increase in the non-sampling error. Often these imputations make use of both administrative and survey data together. The limitations of the survey data have already been
discussed. There are details of how to access a list of administrative sources used in the data sources section, each of these data come with their own non-sampling error, although there will usually be fewer sources of such error in administrative data than in survey data.

**Measurement error**

Measurement error occurs when reported survey responses are different from the true value. This can occur for a variety of reasons, but the LCF take a number of steps to minimise this error. In some cases, the respondent may be unable or unwilling to provide a true answer to the question. This is particularly relevant in areas that are sensitive, related to the LCF income questions. Respondents are encouraged to consult their payslip where possible to aid the provision of accurate information. Measurement error can also occur if the question is unclear or if participants are unable to understand the question; this is addressed in the LCF through extensive testing of new questions, this includes cognitive testing. A recent example of cognitive testing is a new question on combined utility expenditure, data from this question is used in estimates of indirect taxation. The use of CAPI minimises collection error, but it may be off-putting compared to other methods that allow anonymity from the interviewer and less pressure from interviewer time restrictions. A further source of measurement error is the participant's response to the interviewer; in some cases the socioeconomic characteristics of the interviewer make the participant feel uncomfortable in giving a true answer.

Assurances are given to respondents that their data will be treated in line with the National Statistics Code of Practice and the practicalities of what this means are explained. In the case of personal information, such as income and expenditure, this is particularly relevant; some respondents may report income that is in line with their tax returns rather than the true value. It is therefore likely that there will be some under-estimation of income. Research suggests a larger level of under-reporting for self-employed income than income from wages and salaries. From an expenditure point of view, households may be reluctant to give true estimates of some items. As discussed above, there is known under reporting of alcohol, tobacco and confectionary, so an adjustment is made.

This analysis deals with some income concepts that may differ from the common perception of income. Steps have been taken to break the questions on income down to components to ensure that the desired level of conceptual accuracy is collected. Exact figures are requested where possible; where these are not available estimates are allowed, notably income from self employment and interest and dividend income. In some cases we anticipate that respondents may in reality provide a rounded figure. As stated above, respondents are encouraged to consult documentation to increase the accuracy of their response.

**Systems error**

A number of the processes undertaken to conduct the LCF and the ETB (Effects of taxes and benefits) analysis are automated. Therefore, there is a possibility that error could arise as a result of a misspecification of some of these computerised processes. However, the data undergo rigorous quality assessment processes to look for any indication that an error has occurred; this enables any errors to be rectified at an early stage. However, it is impossible to assure 100 per cent system accuracy. Using systems saves resource and also limits non-sampling error that could occur as a result of carrying out the same processes manually.
Aside from methodological improvements, the same processes are used year on year and are quality assured each year. Therefore, it seems unlikely that large error would emerge from our automated systems.

Moreover, while the use of CAPI minimises data entry error it is still possible that keying errors can occur when the interviewer enters the response.

**Editing error**
The LCF undergoes a variety of editing checks from both the LCF and ETB teams. This is to ensure the quality of the data and to highlight and correct cases that are deemed to be in error. This process is usually automated with software flagging erroneous cases. The number of edited cases is small and changes are only made where it appears clear that the response is an error. Data editing may also occur during the interview, with the interviewer flagging responses that do not appear to be consistent. The Blaise computer assisted interviewing program that is used by ONS for social surveys, will not allow an interview to proceed where a response is not possible and will flag with the interviewer responses that seem unlikely, in order that it can be queried at the point of interview.

**Data transmission error**
It is possible that data can lose its integrity when it is transferred between areas and systems. Data is transmitted from the field to the sources division and then to the team that carry out the analysis. At each stage, checks are undertaken to ensure that the data has maintained its integrity. Large errors would be detected and the data transferred again. Any error is likely to be the result of differences in rounding precision in different systems and therefore negligible.

5. **Quality information**

A [Quality and Methodology Information paper (212.1 Kb Pdf)](#) for The effects of taxes and benefits on household income is available.

The UK Statistics Authority published a [report](#) following an assessment of The effects of taxes and benefits on households income in 2011. This was in order to assess the compliance of this National Statistic against the [Code of Practice for Official Statistics](#).

6. **Advice on historical comparisons**

This analysis is the latest in an annual series covering the years from 1957 onwards. From 1987 onwards, the analyses have used a very different methodology; in particular households are ranked by their equivalised disposable income. Hence, the results are not comparable with earlier years. A list of the previous articles is included in the article published in March 1997. Where historical comparisons are shown prior to 1987 within that article, they are presented on a similar basis.

From 2009/10, where equivalisation is applied, the modified-OECD scale is used whereas in previous ETB analyses the McClements scale was used. For more information see the [Disposable income](#) section. A time series of key data tables using the modified-OECD scale are planned for publication later in 2012.
Due to a change in methodology, data on benefits in kind and final income are no longer directly comparable with previous years. A methodological paper further explaining changes to benefits in kind estimates, including a consistent time series for benefits in kind from 2005/06 is planned for publication later in 2012. For more information see the Final income section.

The results in all analyses are intended to be free standing: they were not designed for direct comparison with other years except where some limited comparisons are made within. The estimated values of taxes and benefits reflect the methodology used in this study. They are based on assumptions about which taxes and benefits should be covered and to whom they should apply. Where it is practical, the methodology used is similar to that used in previous years. However, there have been some changes in the underlying surveys and improvements made to the methodology. For this reason, one should be cautious about making direct comparisons with earlier years. Comparisons with previous years are also affected by sampling error (for more details see the quality information section). This is especially true for estimates which are based on sub-samples such as the results for decile or quintile groups, or particular types of household. Time series are presented for some of the more robust measures, and these include Gini coefficients and other measures of inequality.

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Supporting Information

Further information

Economic and Labour Market Review - Using the OECD equivalence scale in taxes and benefits analysis - No. 1, January 2010
No. 1, January 2010

Quality and Methodology Information for The effects of taxes and benefits on household income
Pdf document of ONS's Quality and Methodology Information for The effects of taxes and benefits on household income

How effective are taxes and benefits in reducing inequality in the UK

Economic and Labour Market Review - An expenditure based analysis of the redistribution of household income
No. 3, March 2010

Comparison of UK and EU at-risk-of-poverty rates

The Gini coefficient
Description of the Gini coefficient – a measure of inequality of household income.

How indirect taxes can be regressive and progressive
An analysis of how UK household indirect taxes can be both regressive and progressive depending on whether the distribution of households were ranked according to their disposable income, or their expenditure.

The effect of VAT on household disposable income
This article examines the effect of VAT on average disposable income for both low income and high income households.

The effect of alcohol and tobacco duties on household disposable income
Analyses the effects of duties on alcohol and tobacco on equivalised household disposable income.

The effect of duties on petrol and diesel on household disposable income
The effect of duties on petrol and diesel on higher and lower income households.

Related Internet Links

Households Below Average Income (HBAI)
Based on an analysis of the Family Resources Survey (FRS) the HBAI series presents information on potential living standards of pensioners as determined by their disposable income in a given year

Glossary

Unit of analysis
The basic unit of analysis used is the household, and not the family, individual or benefit unit. A household is defined in terms of the harmonised definition as used in the Census and nearly all other government household surveys since 1981. This is one person, or a group of people, who have the accommodation as their only or main residence and (for a group) share the living accommodation, that is a living or sitting room, or share meals together or have common housekeeping. Up until 1999-2000, the definition was based on the pre-1981 Census definition and required members to share eating and budgeting arrangements as well as shared living accommodation. The effect of the change was fairly small, but not negligible. Spending on many items, particularly on food, housing, fuel and light, is largely joint spending by the members of the household. Without further information or assumptions it is difficult to apportion indirect taxes between individuals or other sub-divisions of households. The sample households have been classified according to their compositions at the time of the interview. This classification is sensible for the vast majority of households, but it can be misleading for the very small number of cases where a spouse is absent from the household at the time of interview. The absent spouse may well be working away from home, or living separately - but contributing financially to the household's upkeep. These contributions would be picked up as part of the household's original income. Also, it is likely that some households will have changed their composition during the year.

Retired household
A retired household is defined as one where the combined income of retired members amounts to at least half the total gross income of the household, where a retired person is defined as anyone who describes themselves as ‘retired’ or anyone over minimum National Insurance (NI) pension age describing themselves as ‘unoccupied’ or ‘sick or injured but not intending to seek work’. By no means are all retired people in retired households. For example, households comprising one
retired and one non-retired adult are often classified as non-retired. Around one in five households comprising three or more adults contains retired people.

**Children**

In classifying the households into various types, a child (i.e. a dependent) is defined as: either aged under 16; or aged 16, 17 or 18 not married, and receiving full-time non-advanced further education.

**Economically active**

Economically active people comprise persons aged 16 or over who, at the time of interview, were: employees at work; employees temporarily away from work, for example through illness, temporary lay-off or industrial action; on government training programmes; self-employed; not in employment but who had sought work within the last four weeks, or were waiting to start a job already obtained.

**Imputed Income from benefits in kind**

See: Original income.

**Benefits in kind**

See: Final income.

**Equivalisation**

Equivalisation adjusts income to account for the effect of household composition on standard of living. This analysis uses the modified-OECD scale. For more information see: Disposable income, and Anyaegbu (2010) which compares results using the modified-OECD and McClements scales.

**Expenditure**

See: Post-tax income.

**Lorenz curve**

See: Measuring inequality.

**Gini coefficient**

See: Measuring inequality.

**Population weighting**

See ‘Non-response bias’ in: Sampling error.

**References**


