
Abstract

ONS’s Effects of Taxes and Benefits on Household Income publication includes estimates of the value of benefits in kind received by households from the state in order to produce figures for the final income of households in the UK. There have been a number of improvements to the methodologies used for calculating the benefits in kind in recent years, with the largest changes occurring in the measurements of the education, healthcare and rail travel subsidy benefits. This article describes these changes and explains the impact on the value and redistributitional effect of these benefits in kind when applying the new methodology to previous years’ data. Analysis of these figures shows that the value of the average benefits derived by households from education, NHS services, bus subsidies and school meals have all increased in real terms between 2005/06 and 2010/11, while the average value of the benefits in kind for households from housing and rail travel subsidies are lower in real terms in 2010/11 than in 2005/06. As education and NHS services are by far the largest categories of benefits in kind by value, this has meant that overall, the value of total benefits in kind received by households has increased in every year during this period. For all years covered by this article, the poorest fifth of households received a higher value from benefits in kind than the richest fifth, on average. This indicates that benefits in kind contribute to income being shared more equally between households.

Introduction

Since 1962, the Office for National Statistics and its predecessor organisations have published analysis showing how taxes and benefits redistribute income between different types of households in the UK. In order to measure as completely as possible the impact of the tax and benefits systems on households, this analysis includes estimates for the value of the benefits in kind they receive from the state (such as education and the NHS), in addition to the cash benefits received.

The benefits in kind included in the ONS analysis currently fall into six categories – education, the NHS, subsidies for housing, rail and bus travel and school meals (including Healthy Start vouchers and nursery milk). For all of these benefits, the value allocated to households is assumed to be equal to the cost of provision incurred by the state. Collective services such as policing and
national defence are not currently included in this analysis. The nature of these collective benefits in kind makes it impossible to quantify the benefit they yield to individual households and therefore impossible to assess their redistributional effect.

Over time, the methodology used for measuring these benefits in kind has changed considerably, reflecting changes both to the benefits themselves and the data which is available to allocate them to individual households within the analysis. In particular, the availability of new sources of data has allowed improved ways of allocating those benefits to households, increasing the quality of the estimates produced. This article looks at the methodological improvements that have occurred between 2005/06 and 2010/11.

The initial sections of this article describe how the methodologies have been enhanced and how these changes have affected the value of the benefits attributed to households. The final section applies the current methodology retrospectively to provide a consistent time series, for 2005/06 to 2010/11, showing how the size and distribution of these benefits to households have changed in real terms.

Notes

1. The starting point for this time series (2005/06) was chosen on the basis of data availability.

Methodological changes and their effect on the valuation of benefits in kind

By value, the largest components of benefits in kind are healthcare and education, which together made up 96.3 per cent of total benefits in kind received by households in 2010/11 and, as such, these two benefits drive changes in the total value of benefits in kind received by households. These are also the two areas for which the measurement methodology has most changed during the period covered by this article. Major improvements were made to the measurement of benefits in kind from the NHS between 2008/09 and 2009/10 while the benefit in kind from education methodology was enhanced between 2007/08 and 2008/09 and again from 2008/09 to 2009/10.

The measurement of most of the smaller benefits in kind items – rail travel, school meals and housing subsidies have also experienced changes during the years studied. The exception is the benefit derived from bus travel subsidies, for which the methodology is unchanged. The following sections describe the changes for each benefit in turn and how these have affected the value of the benefits allocated to households.

The distributional impact of the methodological changes is assessed by looking at the effect of retrospectively applying the current methodology on the benefits received by each quintile of households. In order to allocate households into quintiles, their disposable incomes are first equivalised to account for different household compositions. The households are then ranked in order of equivalised disposable income to split them into quintiles. For more information on the equivalisation process, please see Background Note 3.
**Education**

**Changes to methodology**

The first benefit in kind examined is the benefit received from state-provided education. The approach for allocating these benefits to households has, throughout this time, relied upon information provided by the Department for Education (and its predecessor departments) in England and, where available, the devolved administrations on the cost per full-time equivalent pupil or student in maintained special schools, nursery and primary schools, secondary schools, further education institutions and universities.

The value of the benefits attributed to a household depend on the number of people in the household recorded in the Living Costs and Food Survey (LCF) as receiving each kind of state education (students living away from the household, as well as children educated in private schools and by home schooling are excluded).

Prior to 2008/09, the analysis relied upon figures for spend per pupil from 2003/04 which were then up-rated to the current year using the increase in total government expenditure in the relevant area of education. Figures on spend per pupil were available for the following areas:

- Primary and nursery schools,
- Secondary schools (ages of 11-15),
- Secondary schools (over 15) and further education,
- Special schools,
- Higher education.

As up-to-date figures for education expenditure were available for England only, a figure for Scotland was also produced by applying a fixed multiplier to the England figures for nursery and primary schools and secondary schools to reflect the higher level of school spending in Scotland at that time. A weighted UK spend per pupil figure was then produced by applying the figures for England and Scotland to the rest of the UK. Costs for school and FE students were obtained from the Department for Education and Skills and its successor departments. Costs for higher education were from the Higher Education Funding Council for England.

This methodology was improved in 2008/09 and again in 2009/10 as more data sources became available. For 2008/09, new annual categorised cost per student data became available from the Department for Children, Schools and Families (DCSF, now the Department for Education) for England, removing the need to up-rate data from 2003/04. As these new data distinguished between nursery and primary school cost per pupil, this further enhanced the accuracy of estimates of the benefit received by individual households.

For 2009/10, further data became available from the Welsh Assembly Government for spending per student in each category. These figures were used to estimate the spending for Scotland and Northern Ireland, replacing the previous scaled-up Scotland estimates.

**Impact of changes**
When applying the current methodology for the benefit in kind received from education to previous years, the benefit increases for the years 2005/06, 2006/07 and 2009/10 and decreases in the years 2007/08 and 2008/09 (Figure 1).

**Figure 1: Comparison of original and current methodologies for estimating the average benefit in kind received by households from education**

Source: Office for National Statistics

Notes:
1. As the current methodology was introduced in 2010/11, there is no estimate using the original methodology in the year 2010/11.

There are four main reasons for these changes:

- The education expenditure figures which, prior to 2008/09, were used to up-rate estimates of pupil spend included non-school based expenditure such as capital expenditure. This meant that if the rate of increase (or decrease) in capital expenditure differed from that of school-based expenditure, the scaling factor applied under this old methodology would not accurately reflect changes in pupil spend. This potential problem is not faced by the current methodology.
- The effects of changes in pupil numbers were not explicitly accounted for by the old methodology. As a result, this may have caused estimates of spending per pupil to gradually become less accurate as the size of the pupil population changed over time.
- Some revisions to government expenditure estimates have occurred since the original production of these benefits in kind figures. This is largely responsible for the change in the figure for the
education benefit produced in 2009/10, where the spend per nursery pupil figure was revised from the estimate originally supplied by the Department for Education.

- The introduction of actual Welsh pupil spend figures and the cessation of using scaled up estimates for Scotland, which are likely to have grown less accurate over time. Retrospectively applying this change causes the benefit from education to decrease in all categories of education bar higher education where the same figure was applied to the whole of the UK throughout.

The distributional impact of the methodological changes varies from year to year, though, on average, the implied value of education benefits in kind has increased most and decreased least for households in the upper quintiles (Figure 2). This is primarily due to changes in the value of individual types of education, some of which, such as nursery education, are consumed relatively more by higher income households and, if higher under the current methodology, will cause a rise in the benefit received by richer households. Thus, adopting the new methodology has resulted in the distribution of final income being slightly more unequal.

**Figure 2: Effect of methodological changes on the benefit in kind received by each quintile from education**

![Bar chart showing the effect of methodological changes on the benefit in kind received by each quintile from education](chart)

Source: Office for National Statistics

**Notes:**

1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. As the current methodology was introduced in 2010/11, there is no estimate using the original methodology in the year 2010/11.
NHS Services

Changes to methodology

In the years before 2008/09, the methodology used in the Effects of Taxes and Benefits on Household Income was based on NHS estimates for healthcare spending by age and gender for 1979/80. These expenditure estimates were split into maternity and non-maternity costs. Maternity costs were allocated to all households who had a child of less than 1 year old while non-maternity costs were allocated according to the age and sex of a household's members.

Costs were apportioned between age groups and genders in the same proportions recorded in 1979/80. The data were uplifted using the increase in NHS procurement and pay costs up until 1997/98 when these data measures were discontinued. From 1997/98 onwards, the estimates were updated to the current year by total government expenditure on healthcare.

From 2008/09 the methodology was considerably revised in order to update the estimates of how much different age groups use NHS services and thus how much spending should be apportioned to households based on the age and gender of their members. Up-to-date cost data are now obtained from three NHS spending categories: Hospital and Community Health Services (HCHS), GP consultations and Pharmaceutical services.

In 2009/10 there were further small enhancements reflecting the changing availability of the source data used for the benefit calculation. The current methodology used in calculating the benefit in kind for healthcare expenditure is as follows:

- Hospital and Community Health Services, is made up of acute services, mental health, other community services, geriatrics, learning disabilities, maternity, HQ administration and other services. This expenditure is then apportioned amongst the age ranges: 0-4, 5-15, 16-44, 45-64, 65-74 and 75+, in the same proportions recorded in the 2002/03 data (the year for which expenditure per age category data were available). The proportion of expenditure taken up by maternity services is allocated to all households with children under the age of one year.
- GP consultations data are taken from the National Schedule of reference costs for Primary Care Trusts which gives the average cost of a consultation. Figures on the annual number of consultations received by people according to their age and gender are taken from data produced by not-for-profit organisation QResearch. The two sources are then combined to give an estimate for the benefit received from GP consultations.
- For Pharmaceutical Services only total prescription cost and total number of prescriptions issued are available from the NHS Information Centre, and so a single figure for average ingredient cost per person per year is calculated and applied to all individuals.

The total value of health services received is calculated as the sum of the estimated benefits from these three categories.
Impact of changes

As the overhaul of the health benefit methodology was one of the largest methodological improvements introduced during this period, it is not surprising that it has resulted in substantial changes in the total value of the benefit in kind. However, the size and direction of these changes varies over time.

Figure 3 shows that in the years 2005/06 and 2006/07, use of the new methodology results in estimates of the benefit in kind that were around £300 per household lower than the original methodology. However, in 2007/08 there was little difference in the average benefit value from either methodology, and in 2008/09 the valuation produced by the current methodology exceeded that produced by the original methodology by over £700. The changes to the 2008/09 estimates are primarily due the use of different source data in the year 2008/09 which resulted in this estimate not being consistent with previous or subsequent years.

Figure 3: Comparison of original and current methodologies for estimating the average benefit in kind received by households from NHS Services

Source: Office for National Statistics

Notes:
1. As the current methodology was introduced in 2009/10, there are no estimates using the original methodology in the years 2009/10 to 2010/11.

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In terms of distributional impact, application of the new methodology to the years 2005/06 to 2007/08 has had a larger impact on the lower income quintiles in terms of reducing the estimated value of benefits in kind from NHS services (Figure 4). This is partly because the current methodology considers the relative amount of healthcare benefit received by older people (who are largely located in the lower income quintiles) to be slightly lower than the pre-2008/09 methodology.

Figure 4: Effect of methodological changes on the benefit in kind received by each quintile from NHS Services

![Figure 4: Effect of methodological changes on the benefit in kind received by each quintile from NHS Services](image)

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. As the current methodology was introduced in 2009/10, there are no estimates using the original methodology in the years 2009/10 and 2010/11.

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Other Benefits in Kind

Housing subsidies

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 Northern Ireland Housing Executive (NIHE), housing associations and registered social landlords. Within Greater London, the rest of England, Wales, Scotland and Northern Ireland each tenant of the aforementioned bodies is
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.

In 2007/08 there was a minor change in methodology as different series were used to calculate the total government expenditure on housing subsidies. However, the method of calculation itself remained unchanged. The housing subsidy is now calculated using National Accounts data for total local government housing subsidies, total central government subsidies for housing and community amenities and rent subsidy receipts included in the rent from public corporations.

Retrospectively applying the current data series to the years 2005/06 and 2006/07 results in the average amount of housing subsidy increasing from £20 to £26 per household in the 2005/06 data and from £17 to £22 per household in the 2006/07 data (Figure 5).

**Figure 5: Comparison of original and current methodologies for estimating the average benefit in kind received by households from housing subsidies**

![Chart showing average per household (€ per year) for different years](chart.png)

Source: Office for National Statistics

**Notes:**
1. As the current methodology was introduced in 2007/08, there are no estimates using the original methodology in the years 2007/08 to 2010/11.

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Because housing subsidies are mainly received by poorer households, these increases in the estimate of housing subsidy per household have mainly affected households in the lower quintiles,
resulting in a very slightly more equal distribution of final income. The increase was largest for the second quintile and, as a result, the average value of housing subsidies received by the bottom two quintiles is broadly similar under the new methodology, whereas under the old methodology the average was higher for the bottom quintile (Figure 6).

**Figure 6: Effect of methodological changes on the benefit in kind received by each quintile from housing subsidies**

![Graph showing the effect of methodological changes on the benefit in kind received by each quintile from housing subsidies.](chart)

Source: Office for National Statistics

**Notes:**
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. As the current methodology was introduced in 2007/08, there are no estimates using the original methodology in the years 2007/08 to 2010/11.

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**Rail travel**

Figures for rail subsidies are based on those published by the Department for Transport. For the purpose of this analysis the subsidies received (or paid) by Train Operation Companies (TOCs) are grouped into three categories. These are: Inter City Services, Commuter Services in South East England and the London Underground, and Commuter Services for the rest of the UK. The levels of subsidy are adjusted to account for the use of rail travel by the business sector, tourists and those who do not live in private households (e.g. prisoners and people living in care homes).
These rail subsidies are allocated to households according to their spending on rail travel as recorded by the Living Costs and Food Survey (LCF). In making these allocations, the subsidy for Inter City Services is allocated across all households in the UK, whilst the subsidy for South East commuter and London Underground services is allocated across the 6.6 million households in the South East and London who are assumed to be the main beneficiaries of this subsidy. Similarly, the subsidy for commuter services for the rest of the UK is allocated across the 19.7 million households outside the South East and London.

From 2010/11 these estimates were enhanced by taking into account the impact of the Government grant to Network Rail, which in effect provides an indirect subsidy by reducing the amount that Network Rail needs to charge the Train Operating Companies (TOCs), thereby resulting in a more comprehensive estimate of the total rail subsidy. The Department for Transport publishes figures allocating the value of this grant to individual TOCs, which was used to apportion it regionally using a similar approach to that for the direct subsidies.

As the government’s grant to Network Rail was not included in the calculation of this subsidy until 2010/11, the new methodology results in a higher valuation of the benefit received by households as a result of rail travel subsidies for all years covered by this analysis (Figure 7).

Figure 7: Comparison of original and current methodologies for estimating the average benefit in kind received by households from rail travel subsidies

Source: Office for National Statistics

Notes:
1. As the current methodology was introduced in 2010/11, there is no estimate using the original methodology in the year 2010/11.
Because households in the top quintile are the main beneficiaries of the rail subsidy due to their high expenditure on rail travel, the increase in the subsidy caused by the methodological change is largest for this group, resulting in a more unequal distribution of final income (Figure 8).

Figure 8: Effect of methodological changes on the benefit in kind received by each quintile from rail travel subsidies

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. As the current methodology was introduced in 2010/11, there is no estimate using the original methodology in the year 2010/11.

School Meals (including nursery milk and Healthy Start vouchers)

Until 2008/09, the benefit in kind received from school meals was calculated by taking the 2004/05 estimate for spending on school meals in England and up-rating it to the current year using growth in total government current expenditure on schools. This spending in England figure was then divided by the total number of children in England eligible for school meals as estimated by the Expenditure
and Food Survey (now the Living Costs and Food Survey) to give an expenditure per pupil figure. This figure was then applied to the UK as a whole.

For 2008/09 onwards, annual data from DCSF on expenditure on school meals became available, removing the need to up-rate the 2004/05 estimates and therefore increasing the accuracy of the estimates.

In addition to these improvements, these estimates have also been amended to reflect policy changes. In 2010, data on Healthy Start vouchers became available from the Living Costs and Food survey, and the benefit from this scheme was allocated amongst households based on survey responses. As this data was only collected 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 discontinuity accounts for the noticeable increase in the benefit between 2009/10 and 2010/11 (Figure 9).

As expenditure on school meals increased more rapidly than total government expenditure on education (which was used to scale up school meals expenditure figures for the years 2005/06 to 2007/08) the old methodology resulted in an increasing underestimation of the benefit from school meals. The new methodology therefore results in a higher average benefit from school meals which increases between 2005/06 and 2007/08.

**Figure 9: Comparison of original and current methodologies for estimating the average benefit in kind received by households from school meals**

![Average per household (£ per year)](image)

Source: Office for National Statistics

**Notes:**
1. As the current methodology was introduced in 2008/09, there are no estimates using the original methodology in the years 2008/09 to 2010/11.
2. Includes nursery milk and Healthy Start vouchers (from 2010).
3. Due to the fact that survey data recording Healthy Start vouchers was unavailable in the years prior to 2010, the figures for 2009/10 and 2010/11 are not consistent with those of previous years.

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As the new methodology only involves a change in the value of school meals, the distribution of the school meals benefit between income quintiles is unchanged, with about half going to the poorest quintile and the per household benefit declining sharply as incomes rise (Figure 10). Therefore, adopting the new methodology for the years 2005/06 to 2007/08 results in a slightly more equal distribution of final income in these years.

Figure 10: Effect of methodological changes on the benefit in kind received from each quintile from school meals

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. As the current methodology was introduced in 2008/09, there are no estimates using the original methodology in the years 2008/09 to 2010/11.
3. Includes nursery milk.
Changes in Benefits in Kind Over Time

The final section of this article uses the methodologically consistent figures that have been produced for 2005/06 to 2010/11 to look at trends in each benefit over this period. In order to accurately estimate the value of benefits received by households in past years, a deflator is applied to record all benefits in 2010/11 prices. As government expenditure goes on a different basket of goods than is consumed by other entities in the economy, the implied deflator for government expenditure is used\(^1\).

Education

Figure 11 shows that, overall, there has been a real terms increase in the average benefit from education over this period, with the average increasing from £2450 in 2005/06 to £2762 in 2010/11. This reflects the overall increase in real spending per pupil which occurred over this period. The growth was strongest between 2008/09 and 2010/11, a period which saw fast growth in spend per pupil in the nursery, primary and secondary (ages of 11 to 15) school categories.

Throughout this period, the bottom quintile received the highest benefit from state education, while households in the top quintile received the least. This mainly reflects the average numbers of children per household in each of these groups, but is also partly due to the greater use of private education by households in the top quintile. Between 2007/08 and 2010/11, there was an increase in the education benefit received by the top quintile which appears to be mainly due to an increase in the average number of people in full time education per household in this group.

Figure 11: Benefit in kind from government education expenditure

Source: Office for National Statistics
Healthcare

Figure 12 shows how the average value of benefits in kind received by households as a result of government spending on healthcare has changed over time. As with education, the overall trend for this period shows a real-terms increase, with the average benefit in kind from the NHS increasing from £3578 in 2005/06 to £4065 in 2010/11.

Since the most important factor determining the value of the benefit received by a household from healthcare is the age of the household's members, the distribution of the health benefit between income quintiles is demographically driven. Expenditure on healthcare is high for infants but declines rapidly through childhood and remains low in early adulthood. Government expenditure on healthcare then rises slowly throughout adult life before increasing rapidly after the retirement age of 65.

Figure 12 shows that the largest beneficiary from health expenditure is the second quintile while the top quintile receives the least. This is mainly due to differences between the quintiles of the number of people over the retirement age. Over the period studied, there were on average 0.66 retired people per household in the second quintile, while in the top quintile there was only an average of 0.17 retired people per household.
Figure 12: Benefit in kind from NHS Services

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. All figures have been adjusted to 2010-11 prices using implied deflators for government expenditure derived from National Accounts Current Price and Chained Volume Measure Series.

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Housing subsidies

An analysis of the time series for housing subsidies shows that the average amount of housing subsidy received per household fell from £31 in 2005/06 to £22 in 2007/08 but since 2009/10 has risen back up to £25 per household (Figure 13). The majority of housing subsidy was allocated to the poorest two quintiles, who received at least ten times the benefit of the richest quintile on average in every year throughout the period.
Figure 13: Benefit in kind from housing subsidies

Average per household (£ per year)

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. All figures have been adjusted to 2010-11 prices using implied deflators for government expenditure derived from National Accounts Current Price and Chained Volume Measure Series.

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Rail Travel

The average benefit received by households in the form of lower railway ticket prices due to government subsidies grew from £106 to £141 per household between 2005/06 and 2007/08, the year at which it peaked before declining to £90 in 2010/11 (Figure 14).

Despite the changes in the size of the rail travel benefit, the distribution of the benefit has not changed dramatically over the years studied. Unlike the other benefits in kind covered by this analysis, which typically benefit households with lower incomes more than higher ones, the benefit derived from rail travel subsidies tends to rise with income. This is because, on average, richer households spend more on rail travel than poorer ones. Between 2005/06 and 2010/11, the top quintile received approximately half of the total benefit resulting from the rail travel subsidy. In contrast, the benefit received by the bottom two quintiles combined was averaged just over 15% of the total over this period.
Bus travel

While the methodology for calculating the benefit households receive from government subsidies to bus operating companies did not change over this period, it is still interesting to examine the trends in the deflated time series. These figures show that, overall, the size of the benefit received by households as a result of bus subsidies has grown at an average of just over 2 per cent per year in real terms over the period 2005/06 to 2010/11, from £73 to £84 (Figure 15).

The benefit from bus subsidies is not evenly distributed between all bus users, with an extra benefit experienced by children entitled to concessionary fares and over-60s who are entitled to free bus passes. As a result, the quintile which derives the largest benefit from subsidised bus travel is the second quintile as this contains more of the over-60 population than any other.
Figure 15: Benefit in kind from bus travel subsidies

Average per household (£ per year)

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. All figures have been adjusted to 2010-11 prices using implied deflators for government expenditure derived from National Accounts Current Price and Chained Volume Measure Series.

School meals (including nursery milk and Healthy Start vouchers)

Between 2005/06 and 2008/09 the average value of the benefit in kind received by households as a result of the school meals and welfare milk remained broadly unchanged in real terms (Figure 16). As noted in the analysis of the methodological changes section, data on Healthy Start vouchers from the Living Costs and Food survey became available in 2010. Due to the fact that survey data recording Healthy Start vouchers were unavailable in the years prior to 2010, it has not been possible to allocate this benefit between households in previous years in order to produce a consistent time series. As a result, the estimates for 2009/10 and 2010/11 are not consistent with those from 2005/06 to 2008/09.

Throughout the period of this analysis, the benefit from school meals was considerably higher for lower income quintiles than higher income quintiles. This is because free school meals and Healthy Start vouchers are targeted towards lower income groups, although nursery milk, which is also included in these figures, is available to all children under 5 attending approved day care facilities.
Figure 16: Benefit in kind from school meals

Average per household (£ per year)

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. All figures have been adjusted to 2010-11 prices using implied deflators for government expenditure derived from National Accounts Current Price and Chained Volume Measure Series.
3. Includes nursery milk and Healthy Start vouchers (from 2010).
4. Due to the fact that survey data recording Healthy Start vouchers was unavailable in the years prior to 2010, the figures for 2009/10 and 2010/11 are not consistent with those of previous years.

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Total benefits in kind

Figure 17 summarises the changes in the size and composition of the overall value of benefits in kind received by UK households on average between 2005/06 and 2010/11. The value of all benefits in kind received by UK households increased slowly in real terms between 2005/06 and 2008/09, and during this period the growth was driven almost entirely by increases in the average value of NHS services received by households. The rate of growth between 2009/10 and 2010/11 was faster, reflecting increases in the benefits derived from both healthcare and education.

The average value of all benefits in kind received by households was £7089 in 2010/11, making up 22 per cent of households’ final income. This is higher than in 2005/06 when the average value of all benefits in kind received by households was £6269 and made up 20 per cent of households’ final income.
Figure 17: Total benefits in kind: by benefit type

The distribution of the total benefit in kind has changed little over time, with the bottom quintile receiving the largest benefit and the top quintile receiving the least throughout the period studied (Figure 18). However, the overall value of benefits in kind derived by households grew faster for richer income quintiles, with the total benefit in kind received by the top quintile increasing by 17 per cent between 2005/06 and 2010/11, equivalent to a increase of £866 per year in real terms. In contrast, the total value of benefits in kind received by the poorest fifth of households increased by 10 per cent or £715 in real terms over this period.

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. All figures have been adjusted to 2010-11 prices using implied deflators for government expenditure derived from National Accounts Current Price and Chained Volume Measure Series.
Figure 18: Total benefits in kind: by quintile

Average per household (£ per year)

Source: Office for National Statistics

Notes:
1. Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.
2. All figures have been adjusted to 2010-11 prices using implied deflator for government expenditure derived from National Accounts Current Price and Chained Volume Measure Series.

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Notes
1. The implied deflator for government expenditure is derived from National Accounts Current Price and Chained Volume Measure Series.

Background notes
1. The starting point for this time series (2005/06) was chosen on the basis of the availability of data on the costs and beneficiaries of the benefits in kind covered by this article.

2. Limitations of this analysis

As far as possible, an attempt has been made to retrospectively apply the current methodology for estimating the value of benefits in kind on a consistent basis. However, in some
circumstances this has not been possible where relevant data are not available for all the relevant years.

As no equivalent cost data for GP consultations was available for the year 2005/06, the average costs of consultation for 2006/07 have been scaled back to 2005/06 using the average growth rate in GP consultation costs over the subsequent two years.

Data apportioning the Network Grant between Train Operating Companies are not available for years prior to 2010/11. However the apportionment of the Grant between the three aforementioned services is unlikely to have experienced major changes during the preceding five years and so the total Grant has been split in the same proportions as in 2010/11.

Due to the fact that survey data recording Healthy Start vouchers were unavailable in the years prior to 2010, it has not been possible to produce a consistent time series for the school meals benefit for the entire period studied. This results in the estimates for 2009/10 and 2010/11 not being consistent with those of previous years.

3. **Change in equivalisation scale**

The values produced using the original methodologies in this analysis for the years before 2009/10 differ from those shown in the original Effects of Taxes and Benefits on Household Income publications. This is due to a change in the equivalisation scales used to produce these publications.

Equivalisation is a process that makes adjustments to disposable incomes, so that the standard of living of households with different compositions can be compared. Households are ranked by equivalised disposable income from richest to poorest and in order to place them into quintile or decile groups.

Until 2008/09, the Effects of Taxes and Benefits publication used the McClements scale (before housing costs are deducted). However, to allow for comparability with other data sources, such as the Households Below Average Income (HBAI) series the McClements scale was replaced by the modified-OECD scale in 2009/10.

In order to be able to make comparisons across the years covered by this article, it has been necessary to recalculate the income quintiles for the years 2005/06 to 2008/09 using the modified-OECD scale.

When retrospectively applying the modified-OECD scale to these years, the most noticeable effect of the change in the equivalence scale from the McClements to the OECD scale is an increase in inequality of household income. Thus, when households are ranked according to equivalised disposable income on the OECD scale, for all the income measures, the income of the lowest quintile is lower than when using the McClements scale, and for all the income measures, the income of the highest quintile is higher when using the OECD scale. This is because, in the equivalisation process, the OECD scale decreases the income of large households by slightly less and increases the income of one-person households by slightly less than the McClements scale.
Because use of the OECD scale results in more large households being moved into higher income quintiles, and benefits in kind received by households tend to increase as the number of household members increase, use of the OECD scale has resulted of benefits in kind acting to decrease inequality of final income by less than when the McClements scale used.

It is important to note that equivalised £ are only used in order to divide the sample households into quintiles. All monetary values shown in this analysis are ordinary (i.e. un-equivalised) £ per year.

For more information in the change of equivalence scale, see Grace Anyaegbu, *Using the OECD equivalence scale in taxes and benefits analysis* (165.7 Kb Pdf) (2010).

4. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

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**Supporting Information**

**Glossary**

**Household income**
This analysis uses several different measures of household income. Original income (before taxes and benefits) includes income from wages and salaries, self-employment, private pensions and investments. Gross income includes all original income plus cash benefits provided by the state. Disposable income is that which is available for consumption, and is equal to gross income less direct taxes. Post-tax income is calculated by estimating the payment of indirect taxes, and
deducting these from disposable income. Final income is calculated as post-tax income plus benefits in kind received from the state.

**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: Background Notes and Anyaegbu (2010) which compares results using the modified-OECD and McClements scales.

**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. 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.

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