



HM Treasury

# Impact on households:

distributional analysis to accompany  
Budget 2015

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March 2015





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ISBN 978-1-910337-88-2

PU1760

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# Foreword

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The government's long-term economic plan is building a stronger economy and a fairer society. Living standards are rising as household incomes return to pre-crisis levels, with the highest employment rate on record and pay packets growing faster than prices. We have taken difficult decisions to put the public finances on a sustainable path and, as a result, from its peak the deficit will have halved this year as a share of national income.


Fairness has been at the heart of our approach. When the coalition government came to office, we were clear that those with the broadest shoulders should bear the greatest burden of the deficit reduction, while the most vulnerable in our society should be protected. Today's analysis allows the public to judge for themselves. There is a clear public interest in understanding how our decisions have affected households, which is why we have accompanied every fiscal event with our 'Impact on households' publication. This analysis has marked a step change in the transparency of policy making, which has been welcomed by the Organisation for Economic Cooperation and Development and the Treasury Select Committee.

The analysis speaks for itself. As has been the case at every fiscal event, the analysis shows that it is those with the broadest shoulders who are bearing the greatest burden of the deficit reduction. While reducing the deficit has meant taking tough decisions on welfare, tax and public spending, we have taken action to support families on low incomes and protected the most vulnerable in society. For example, we have: through successive increases to the personal allowance from £6,475 to £10,600 (in April this year), taken millions of working people out of income tax altogether; introduced the pupil premium, which targets resources towards our most disadvantaged children; dramatically expanded the government's free childcare offer, including to the most disadvantaged 40% of 2 year olds; and introduced a triple lock on the basic state pension, which is protecting the incomes of low-income pensioners. At the same time, the top 1% of taxpayers are expected to pay a greater share of income tax in 2014-15 than in any year under the previous government. As a result, by 2015-16, the net contribution to the fiscal consolidation of the richest 20% will be larger than the net contribution of the remaining 80% put together.

Today's publication represents the most comprehensive and robust assessment available of how the decisions we have made in this Parliament have affected families. We made a commitment that we would reduce the deficit in a fair way. The analysis shows that our commitment has been met.



George Osborne  
Chancellor of the Exchequer



Danny Alexander  
Chief Secretary to the Treasury





# 1 Introduction

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**1.1** This publication sets out the government's record across this Parliament on the impacts on households of reforms to tax, welfare, and public service spending. It presents cumulative impacts, which means that it includes measures from all fiscal events since June Budget 2010, up to and including this Budget. The analysis is presented for 2015-16 to make the impact of policies introduced in this Parliament completely transparent. It includes changes that were announced before the June Budget 2010 and have been implemented by this government.

**1.2** This analysis is being published online as a supplementary document to Budget 2015.

## Measuring distributional impacts

**1.3** The government uses a wide range of modelling tools and data to assess the impact of individual measures on households. Considering the impact of these measures on a combined basis presents a trade-off between how accurately a single source of analysis can show the cumulative impact of policy changes and how complete a picture it can provide. This document recognises this trade-off by presenting 2 levels of analysis:

- **decile** analysis of changes to taxes and welfare that carry a quantifiable cash impact on household income or expenditure
- **quintile** analysis, that offers more comprehensive, but less precise, analysis of changes to public service spending, taxes, and welfare that directly affect households. The quintile analysis includes estimates of the impact of benefits in kind from public service spending, and therefore does not translate to a direct cash impact on households

**1.4** The decile analysis in Chapter 2 is presented on the basis of both **household income** and **household expenditure**. Grouping households by their income is recognised as the standard approach to distributional analysis, as income provides a good indication of households' standard of living, but can be complemented by also grouping households according to their expenditure. Analysis on an expenditure basis is useful as some households lower down the income distribution have low incomes only temporarily, for example those containing students, or self-employed or unemployed individuals. During periods of temporary low income such households may maintain their standard of living by funding their expenditure from savings or borrowing, thereby smoothing their lifetime consumption. In the context of distributional analysis, a low-income household's expenditure may therefore be a better indicator of its standard of living.<sup>1</sup>

**1.5** To create deciles, households are ordered by their net income, or alternatively their expenditure, and then divided into 10 equally sized groups. The first decile contains the poorest (or lowest spending) tenth of households while the top decile contains the richest (or highest spending) tenth. Analysis by income quintiles is on the same basis but divides households into 5 rather than 10 groups.

**1.6** In both approaches, a standard process called equivalisation is used to ensure that households of different sizes are compared on a consistent basis. The effects of changes on these groups are presented in both cash and percentage terms.

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<sup>1</sup> For example, see 'Least well-off in society better identified by low spending than low income,' (Institute for Fiscal Studies Press Release, March 2011) which states that "those with the lowest reported income are not those with the lowest spending or those living in the most severe forms of deprivation."

**1.7** HM Treasury, like most other organisations that carry out distributional analysis to estimate the impact of government decisions on households, uses microsimulation modelling. This means that the analysis is underpinned by a survey of household incomes, and the overall impact of government policy is determined by simulating how much each household would stand to gain or lose through each measure, and then aggregating the results into the charts in this annex. In order to do this, analytical decisions must be made about how to use the underlying data, how to model each policy measure, and how best to estimate the impact of government policy on households. These decisions may vary between organisations. Some of these choices are highlighted in Box 1.A.

**1.8** The Treasury analysis captures around 90% of all changes to taxes and welfare made by this government. Tax and welfare measures are excluded from the analysis where there is both insufficient data to reasonably estimate the distributional impacts through microsimulation modelling, and where the cost or saving to the Exchequer is less than £300 million in 2015-16. Operational measures, such as additional funding to reduce fraud and error, do not affect an individual's entitlement to welfare receipt and so are also excluded from this analysis.

**1.9** The analysis of changes to public service spending captures the frontline services from which households benefit, but does not cover capital investment, public goods or central administration costs.

**1.10** Although changes to regulation can often affect household incomes, they have more complex effects on the public finances and are therefore out of scope for this analysis. Therefore, the distributional analysis presented here shows the impact of changes in government policy with a direct impact on tax or public spending, but not of all government decisions. Presenting only the impact of changes to tax and government spending allows the fairness of changes to tax and spending policy to be assessed independently of changes to regulatory measures and the wider economy.

**1.11** More detailed explanations of the data sources, methodologies, the equivalisation process and criteria for including measures in the analysis can be found in Chapter 3 of this document. Chapter 3 also sets out the average gross income within each decile.

### **Box 1.A: Methodological choices in distributional analysis**

#### *Choice of counterfactual*

In order to understand the impact of tax, welfare, and public spending decisions on households, it is necessary to form a view as to what household incomes would be in their absence. Therefore, this analysis makes assumptions around what the benefit rates, tax thresholds, and level of public spending would have been in the absence of this government's decisions. There is always a certain level of judgment involved in forming these assumptions.

For the analysis here, it is assumed that tax, benefit and tax credit rates and thresholds would have increased in line with the system in place immediately before this government came into office. This provides consistency with the rest of the Budget document: the cost of government decisions is estimated by comparing the cost of the new policy to the cost of maintaining the status quo, and calculating the difference. For spending on public services – where no firm spending commitments were set at the end of the last Parliament – it is assumed that spending would increase in line with inflation as measured by the GDP deflator. This is a cautious view, as it does not pass on to households the increased cost of public debt the UK would have incurred if the previous system had been retained.

#### *Choice of data source*

To provide as complete a picture of this government's measures as possible, HM Treasury's analysis is based on the Living Costs and Food Survey (LCF), which is a survey by the Office for National Statistics that aims to estimate the level of household income and expenditure in the UK. It is not the only large survey of income available, although it is the only available large survey of household expenditure. Alternatives to this data source include the Family Resources Survey and the Wealth and Assets Survey, but only the LCF captures the information on household expenditure that enables the modelling of indirect taxes.

#### *Take-up of benefits*

Not all households take up the benefits to which they are entitled, and so the modelling in this annex adjusts for this by using information on the take-up of benefits in the underlying survey data. By doing this, the estimates in this document move closer to the real world impact on households. This is not the only way to capture incomplete take-up, but analysis which does not make some adjustment for the incomplete take-up of benefits will overstate the impact of changes to the welfare system.

#### *Behavioural effects*

In certain cases, it is important to consider how a policy decision may affect individuals' behaviour before estimating the overall impact. If a policy would be likely to significantly change an individual's behaviour – perhaps by reducing the incentive to avoid tax, or increasing the incentive to enter work – then presenting analysis before these behavioural effects are taken into consideration could be misleading. HM Treasury's model is not able to capture the effects of these behavioural changes and so the analysis excludes a small number of this government's policy decisions where modelling that didn't capture these behavioural changes would be likely to significantly overstate how the policy affects households in the real world.

## Modelling updates

**1.12** HM Treasury continues to update and develop its distributional analysis to allow for a more accurate and complete estimate of the distributional impact of the government's decisions across households. While there are no changes to the methodology since the Autumn Statement 2014, the analysis has been updated to reflect the latest round of economic assumptions from the Office for Budget Responsibility (OBR) and up-to-date public service spending plans for 2015-16.

## The counterfactual

**1.13** As set out in Box 1.A, to analyse the effect of the government's measures, assumptions have to be made about what would have happened in their absence. These assumptions are known as 'the counterfactual'. In this document, the effects of the government's measures are assessed against a counterfactual assumption that the previous government's policies would have continued into the future without any further fiscal consolidation. This includes the indexation of tax thresholds, tax credits, the state pension and other welfare spending.

**1.14** In line with this approach, analysis presented in this document shows the impact on households of the government's uprating policy for tax and welfare, compared to the uprating policy of the previous government. In many cases the previous government's policy was to link benefit rates and tax thresholds to the Retail Prices Index (RPI). However, the UK Statistics Authority (UKSA) announced in March 2013 that the formula used to produce the RPI does not meet international standards and as such it will no longer be designated a National Statistic.<sup>2</sup> In the absence of knowing how the previous government would have responded to this announcement it is assumed the RPI would have continued to be used, which has implications for the modelled household impacts in this analysis.

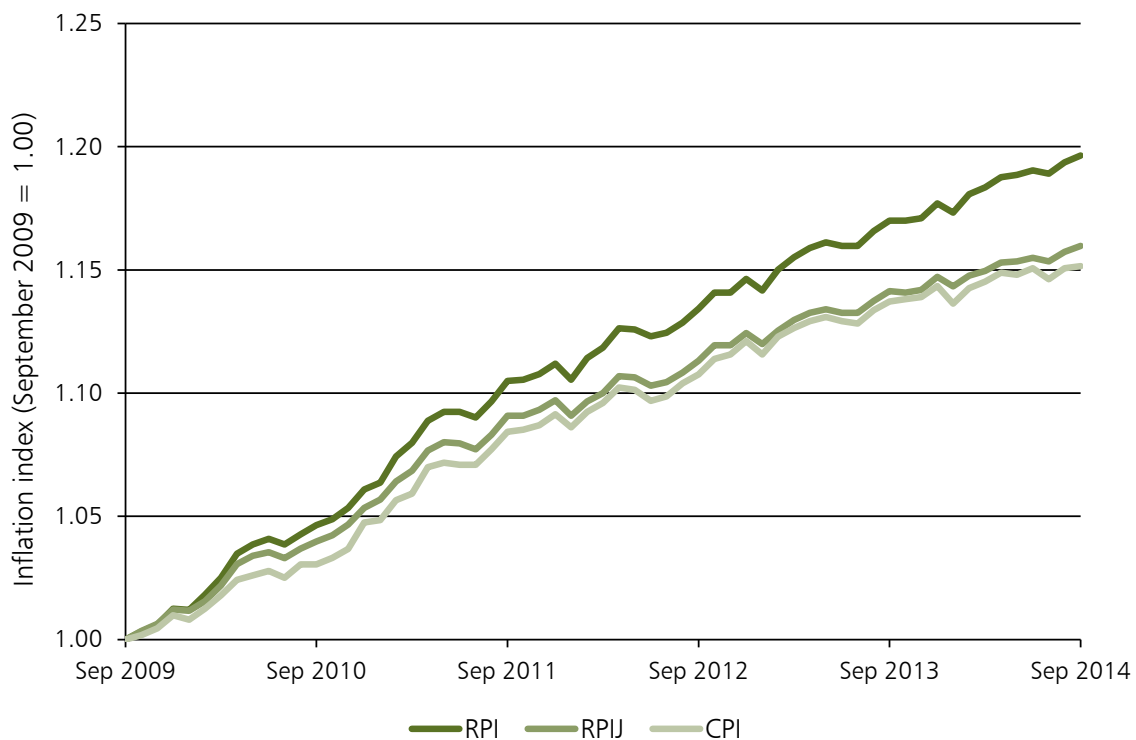
**1.15** In January 2015, the UKSA published an independent review by Paul Johnson, Director of the Institute for Fiscal Studies, of the changes needed to the range of consumer price statistics produced for the UK to best meet current and future user needs.<sup>3</sup> The National Statistician is currently considering this review with a view to making recommendations to the Board of the UKSA. Any recommendations agreed by the Board could have consequences that need to be considered for future distributional analysis.

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<sup>2</sup> See 'Assessment Report 246 – The Retail Prices Index', UK Statistics Authority, March 2013

<sup>3</sup> See 'UK Consumer Price Statistics: A Review', UK Statistics Authority, January 2015

**Chart 1.A: Cumulative changes in RPI, RPIJ, and CPI measures of inflation between September 2009 and September 2014**



Source: Office for National Statistics

**1.16** Chart 1.A illustrates the cumulative changes in the RPI, Consumer Prices Index (CPI) and new RPIJ index between September 2009 and September 2014.<sup>4</sup> RPIJ is an improved variant of the RPI calculated using formulae that meet international standards. The chart shows that, at September 2014, the RPI was 3.2% higher than RPIJ and 3.9% higher than the CPI. This means that the impact of the government’s changes to welfare uprating policy appears bigger in this analysis than it would had the RPI been calculated in line with the new ONS methodology.

**1.17** In addition, government debt would have been higher if the government had not taken action to control the unsustainable deficit that it inherited. The analysis in this document does not show what the consequences for households would have been had the government not taken action to reduce the structural deficit. To meet the costs of higher debt these consequences could have included higher future taxes, lower spending on public services or welfare, or a combination of all three.

<sup>4</sup> The September 2009 RPI index was used to uprate many benefit rates and tax thresholds, where these rates would have increased in April 2010. At the June Budget 2010, the government took the decision to increase benefits in line with CPI, rather than RPI, meaning that the CPI index from September 2010 was used to increase benefit rates in April 2011. Therefore, this chart shows cumulative changes in these inflation indices since September 2009, as that was the last data point used by the previous government in uprating policy.



## 2 Impact on households

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### Wider economy

**2.1** The analysis in this chapter (Charts 2.B to 2.I) focuses on the impact of government tax and spending policy across the distribution of household income or expenditure. It uses income and expenditure to represent the relative standard of living of the household, but doesn't consider the effect of the household's wealth. In addition, this analysis does not consider changes in the wider economy that have also affected household incomes. It is therefore important to consider these tax and spending decisions within the wider economic context, and to do this Chart 2.A shows how household incomes before benefits and taxes have been impacted by inflation and earnings growth between 2007-08 and 2012-13.<sup>1</sup> Economic data after 2012-13 is not currently available by decile, but this earlier story of real household incomes provides the backdrop for the government's tax and spending decisions presented in the rest of this document.

**2.2** The data source used to produce Chart 2.A is different from those used elsewhere in this document. For this reason, the population within each decile group will not be identical to the population in the corresponding decile in the other charts in this document.

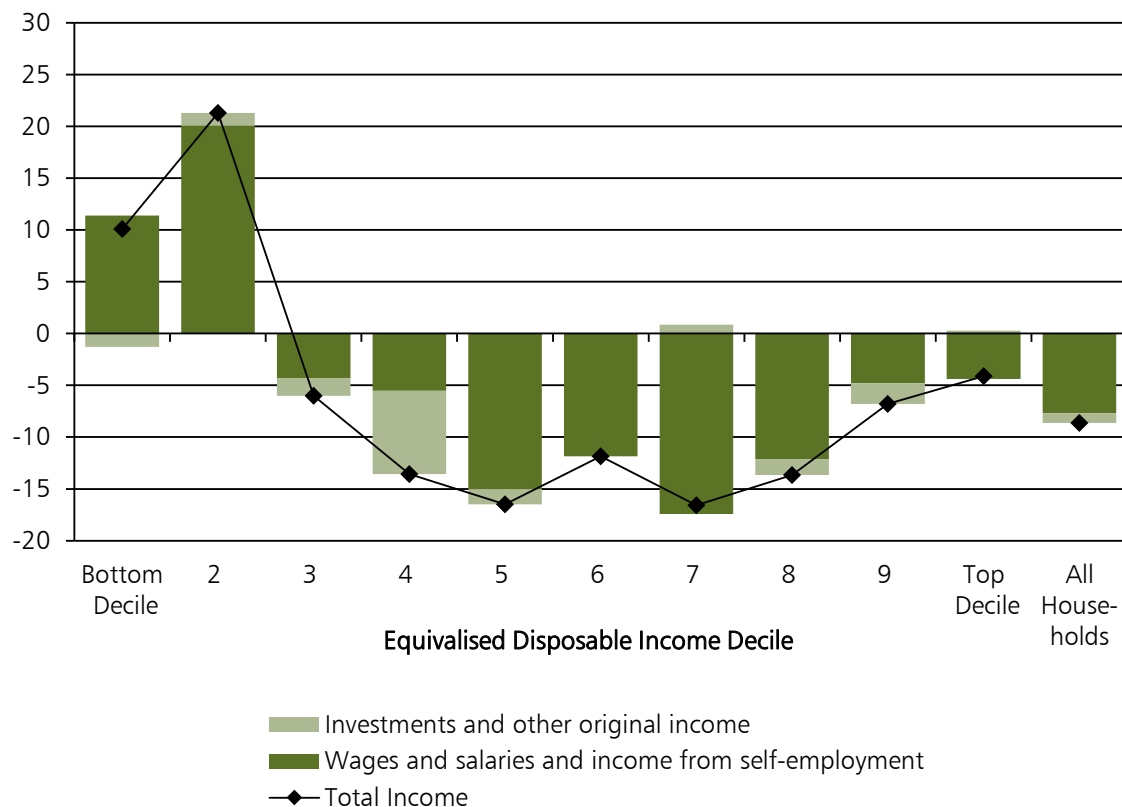
**2.3** Chart 2.A shows that:

- on average, households in the middle of the income distribution saw the largest reductions in real original income between 2007-08 and 2012-13
- on average, households in the bottom 2 deciles saw their incomes protected against the effects of inflation

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<sup>1</sup> In line with Office for National Statistics analysis, figures in this chart are adjusted using the implied household deflator for all deciles to adjust to real terms. Government policy may sometimes affect original household incomes, such as pay for public sector workers, individuals paid at the National Minimum Wage, or the regulation of private pensions.

**Chart 2.A: Contributions to real-term changes in original income before benefits and taxes, 2007-08 to 2012-13, as a percentage of 2007-08 original income<sup>2</sup>**



Source: Office for National Statistics, *The Effects of Taxes and Benefits on Household Income, 2007-08 to 2012-13*

## Overall level of tax, welfare, and public service spending

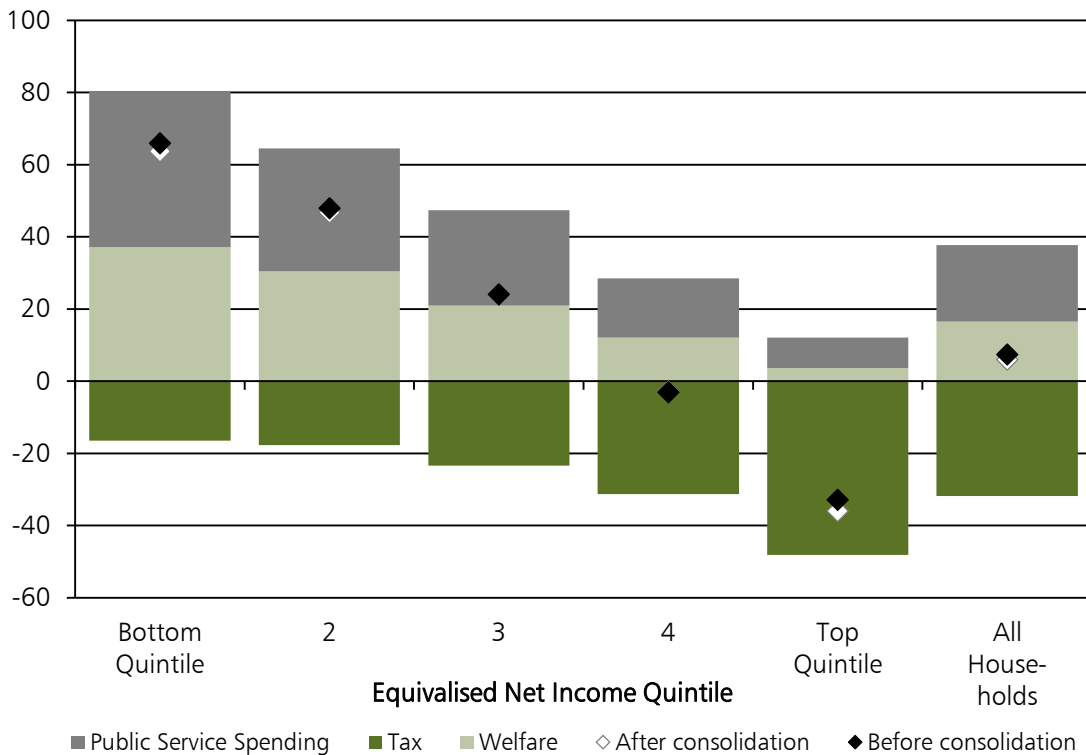
**2.4** To illustrate how the effects of government intervention and redistribution differ across the income distribution, Chart 2.B shows the overall level of households' receipt of welfare and public service spending, after tax, before and after the government's changes to tax and public service spending. The chart shows that:

- on average, the 20% of households with the lowest income receive almost 5 times as much support from public spending as they contribute in tax
- before consolidation, the 20% of households with the highest income contributed three and a half times as much in tax as they received from public spending – this has now increased to almost 4 times as much
- on average, only the 20% of households with the highest income contribute significantly more to the state than they consume in public spending
- the profile across the quintiles at this stage of consolidation remains similar to the profile before consolidation

<sup>2</sup> Original income is comprised of: wages and salaries, income from self-employment, income from investments and savings, income from private pensions and annuities, and imputed private income from benefits in kind, such as company cars and subsidised meals.



**Chart 2.B: Overall level of welfare and public service spending receipt, after tax, of households in 2015-16 as a percentage of 2010-11 net income (including households' benefits in kind from public services), before and after consolidation**



Source: HM Treasury modelling

## Distributional impact on households of tax, welfare and public service spending changes

### Decile analysis of modelled tax and welfare changes

**2.5** This section presents detailed distributional analysis of those changes to the tax and welfare system that it is possible to model in detail at a household level within HM Treasury's tax and benefit microsimulation model. These charts do not include the distributional impact of changes to public service spending: these are presented in the quintile analysis in Charts 2.H and 2.I. The decile analysis captures the direct cash impact on households of tax and welfare decisions. Analysis is presented by both income and expenditure decile. The average gross income for each income decile is set out in Chapter 3.

**2.6** Charts 2.C to 2.F show the impact on households in 2015-16 of policy changes made since 2010, including those announced at Budget 2015. Presenting analysis for 2015-16 allows for the cumulative impact of the government's changes to tax, welfare and public spending policy across the whole of this Parliament to be assessed.

**2.7** The following Budget 2015 measures are captured in the decile charts:

- alcohol duty: 1p off a pint of beer and 2% off cider duty
- alcohol duty: reduce spirits duty by 2%, and freeze wine duty
- fuel duty: cancel September 2015 RPI increase

2.8 However, these charts are not directly comparable to their equivalents at Autumn Statement 2014 due to the impact of changes to the OBR economic assumptions. As such, comparing these charts with those in previous publications would not show the impact of Budget 2015 decisions alone.

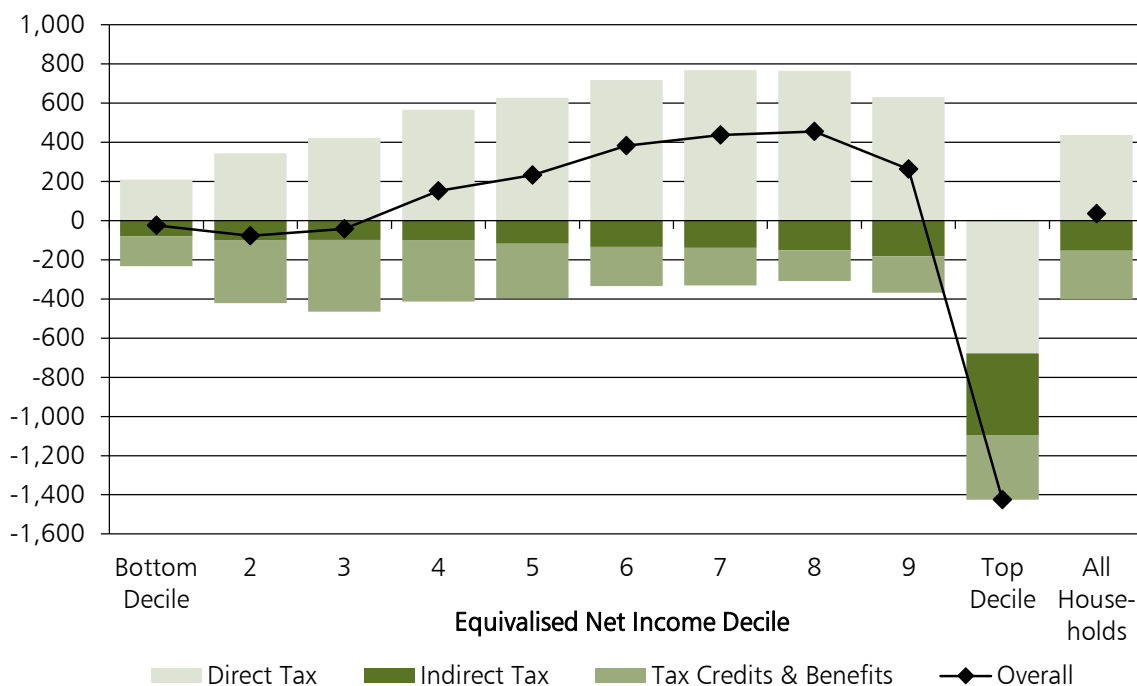
### Impact analysis by income distribution

2.9 Charts 2.C and 2.D show the impact of modelled tax and welfare changes since June Budget 2010, including measures announced at Budget 2015, across the income distribution. Chart 2.C shows the impact in cash terms and Chart 2.D shows it as a percentage of equivalised net household income. The net impact for each decile is given by the black markers, and the bars show how this net impact is composed of changes to direct tax, indirect tax, and welfare separately.

2.10 The charts show that, as has been the case throughout this Parliament, households in the top income decile are making the greatest contribution towards reducing the deficit, both in cash terms and as a percentage of their income.

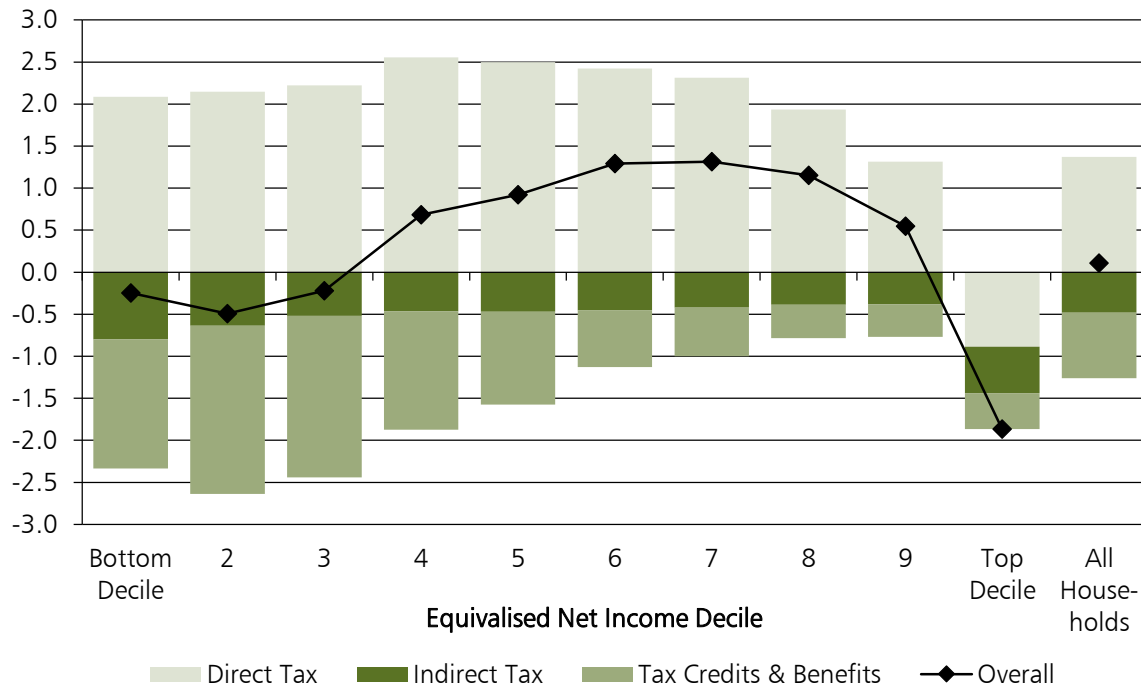
2.11 The charts also show that, when tax and welfare measures are considered together, the average benefit to households is close to zero. However, Charts 2.H and 2.I show that, when assessing the effects of government policy on households, it is also important to consider the impact of wider public spending as well as the impacts of those tax and welfare measures that could not be included in the decile analysis because of modelling limitations.

**Chart 2.C: Cumulative impact of modelled tax and welfare changes on households in 2015-16 in cash terms (£ per year), in 2015-16 prices, by income decile**



Source: HM Treasury microsimulation model

**Chart 2.D: Cumulative impact of modelled tax and welfare changes on households in 2015-16 as a percentage of 2015-16 net income, by income decile**



Source: HM Treasury microsimulation model

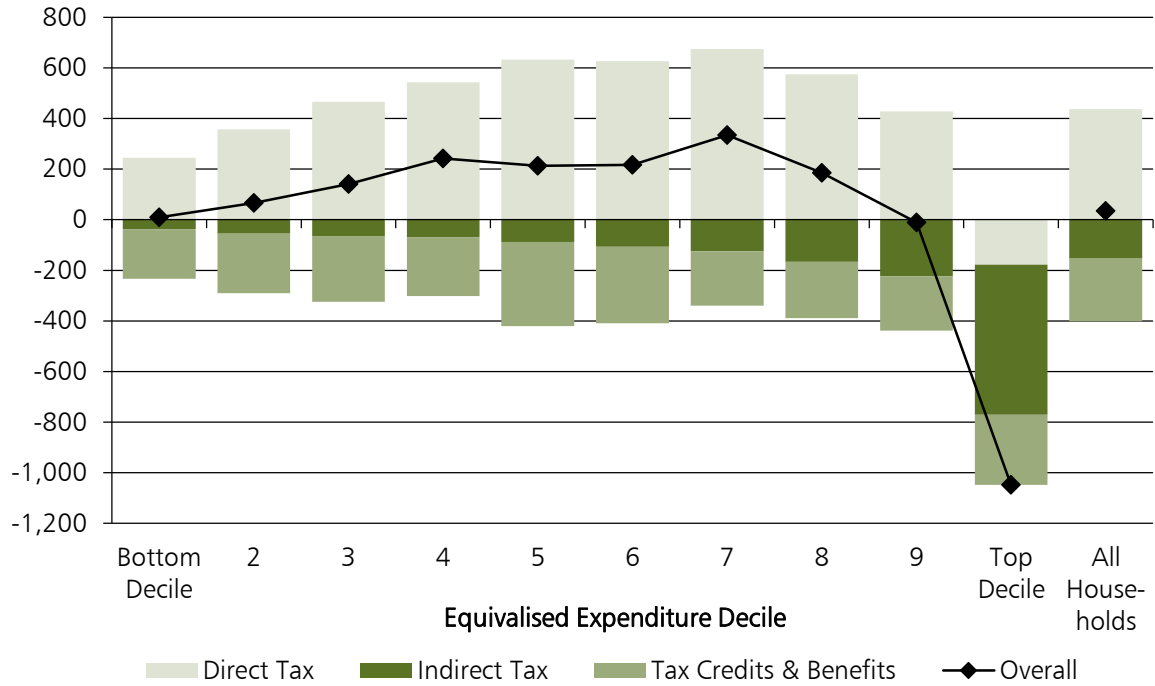
### Impact analysis by expenditure distribution

**2.12** Charts 2.E and 2.F show the impact of modelled tax and welfare changes since June Budget 2010, including measures announced at Budget 2015, across the expenditure distribution. The net impact for each decile is given by the black markers and the bars show how this net impact is composed of changes to tax and welfare separately.

**2.13** Grouping households according to their expenditure can be a useful complement to grouping households by their income. As discussed in more detail in paragraph 1.4, analysis on an expenditure basis is useful as some households lower down the income distribution have low incomes only temporarily.

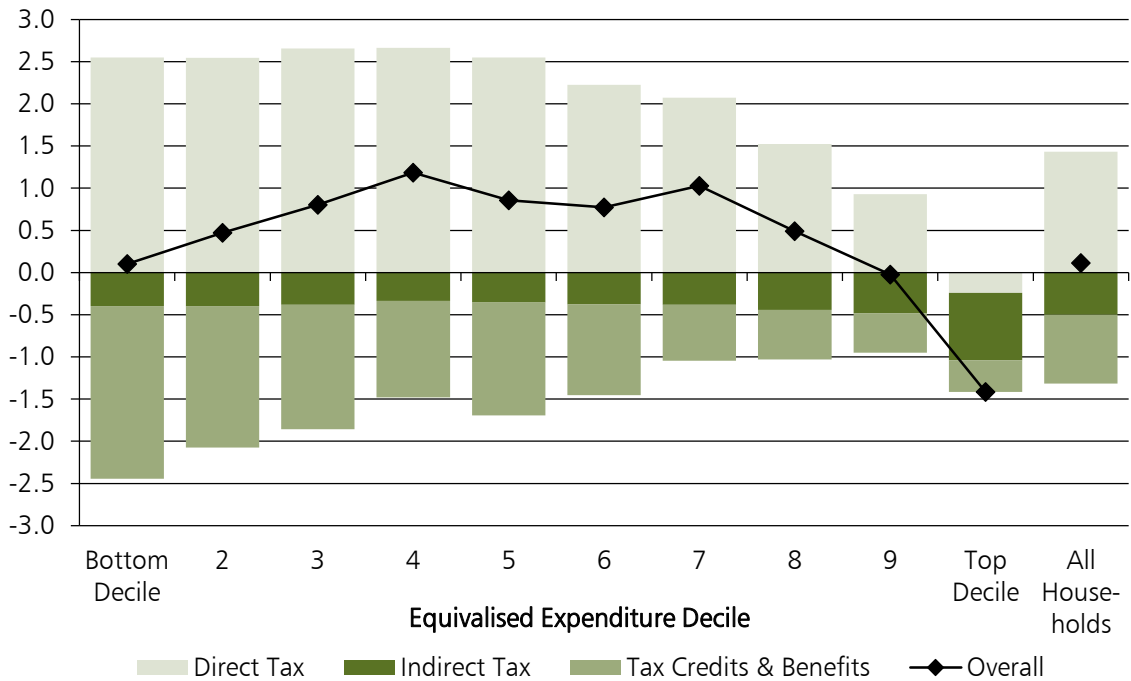
**2.14** Chart 2.E shows the impact in cash terms, and Chart 2.F shows it as a percentage of equivalised household expenditure. The charts show that, as seen since the start of this Parliament, households in the top expenditure decile make the greatest contribution towards reducing the deficit, both in cash terms and as a percentage of their expenditure.

**Chart 2.E: Cumulative impact of modelled tax and welfare changes on households in 2015-16 in cash terms (£ per year), in 2015-16 prices, by expenditure decile**



Source: HM Treasury microsimulation model

**Chart 2.F: Cumulative impact of modelled tax and welfare changes on households in 2015-16 as a percentage of 2015-16 expenditure, by expenditure decile**



Source: HM Treasury microsimulation model

## Universal Credit

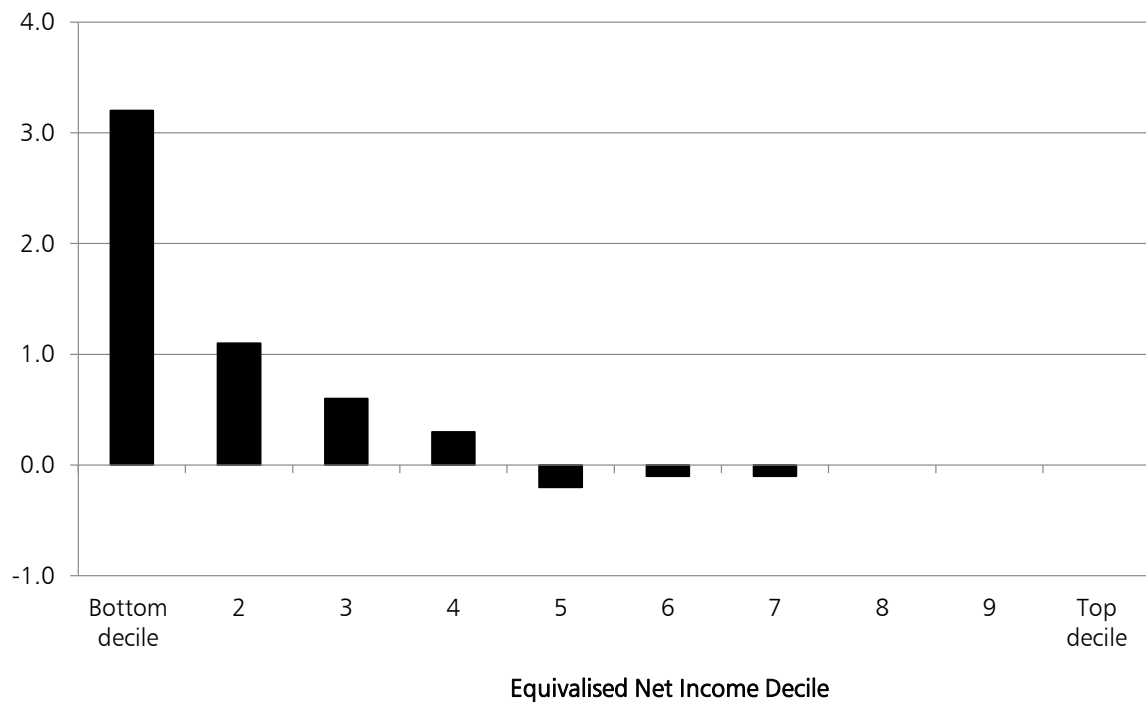
**2.15** As at Autumn Statement 2014, the impact of Universal Credit is not included in the decile analysis above. Universal Credit will be phased in over a number of years to simplify the means-tested benefit and tax credit system, improve work incentives, and ensure that it always pays to work. It will be available to claimants who are both in and out of work, and will include additional elements to support costs in respect of housing, disability, and children.

**2.16** Given the methodological complexities of modelling the period of transition from the existing system, the analysis in Charts 2.C to 2.F does not include any of the impacts of Universal Credit. The distributional impacts of the transition from the legacy system to Universal Credit are instead captured in the broader quintile analysis, where it is possible to make carefully considered assumptions about where the impacts of Universal Credit will fall. The impact of a fully rolled out 'steady state' Universal Credit has been analysed in the OBR certified micro-simulation model, which uses 2014-15 as the year of analysis. The results are shown in Chart 2.G.

**2.17** Like other analysis in this document, Chart 2.G assumes incomplete take-up of income-related benefits and tax credits. The modelled impact therefore includes the effect of higher take-up of claimants' entitlements expected under Universal Credit, due to its relative simplicity and integrated nature. Details of the modelling approach are laid out in Chapter 3 of this document.

**2.18** The chart shows that most Universal Credit gains accrue to low income households. Those with the lowest incomes benefit the most on average while relatively higher income households see, on average, either no change or a reduction in their net income. Transitional protection is in place so there will be no cash losers at the point someone moves onto Universal Credit where their circumstances remain the same.

**Chart 2.G: Average impact of Universal Credit in 'steady state' as a percentage of net income, by income decile, Great Britain**



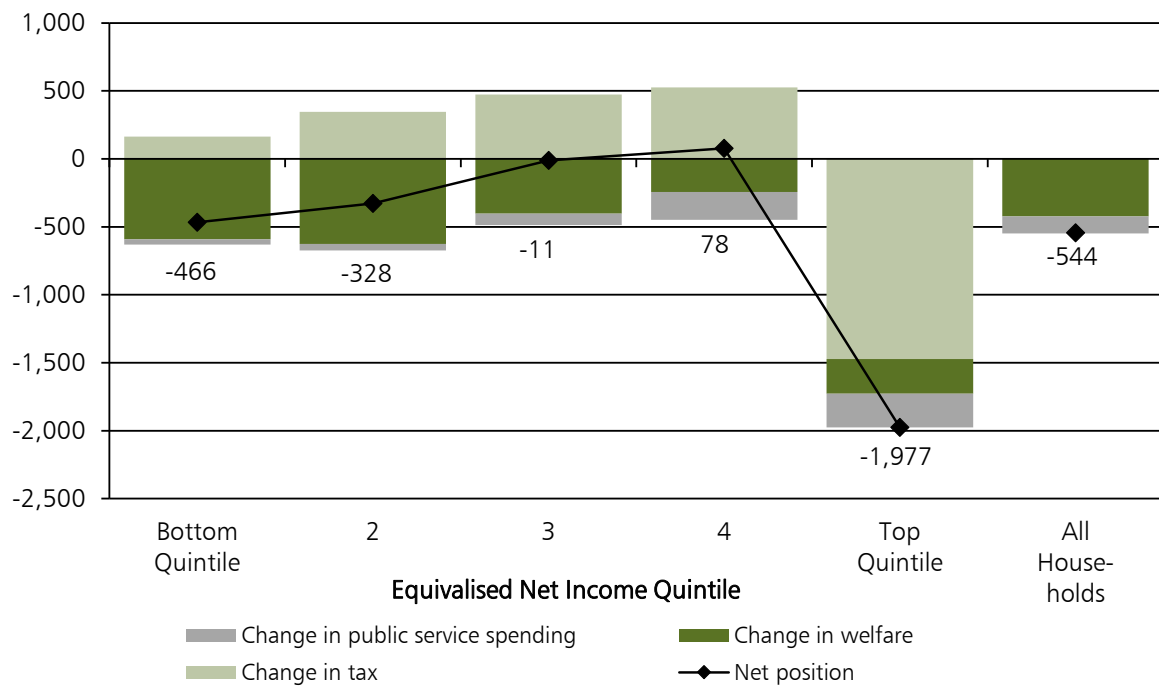
*Source: Department for Work and Pensions Policy Simulation Model. This reflects key entitlement changes and expected increases in take-up, but excludes anticipated reductions in the levels of fraud, error and overpayments.*

## Quintile analysis of modelled tax, welfare, and public service spending changes

**2.19** Charts 2.H and 2.I show the combined impact on households of changes to public service spending, tax and welfare since June Budget 2010, including measures announced at Budget 2015. Unlike Charts 2.C to 2.F, these charts include the benefits in kind provided by public service spending, and therefore the figures presented in the quintile analysis do not translate to direct cash transfers to households. Chart 2.H shows the impact in cash terms and Chart 2.I shows it as a percentage of household equivalised net income, including benefits in kind from public services. The net impact for each quintile is given by the black markers, and the bars show how this net impact is composed of changes to tax, welfare, and public service spending separately.

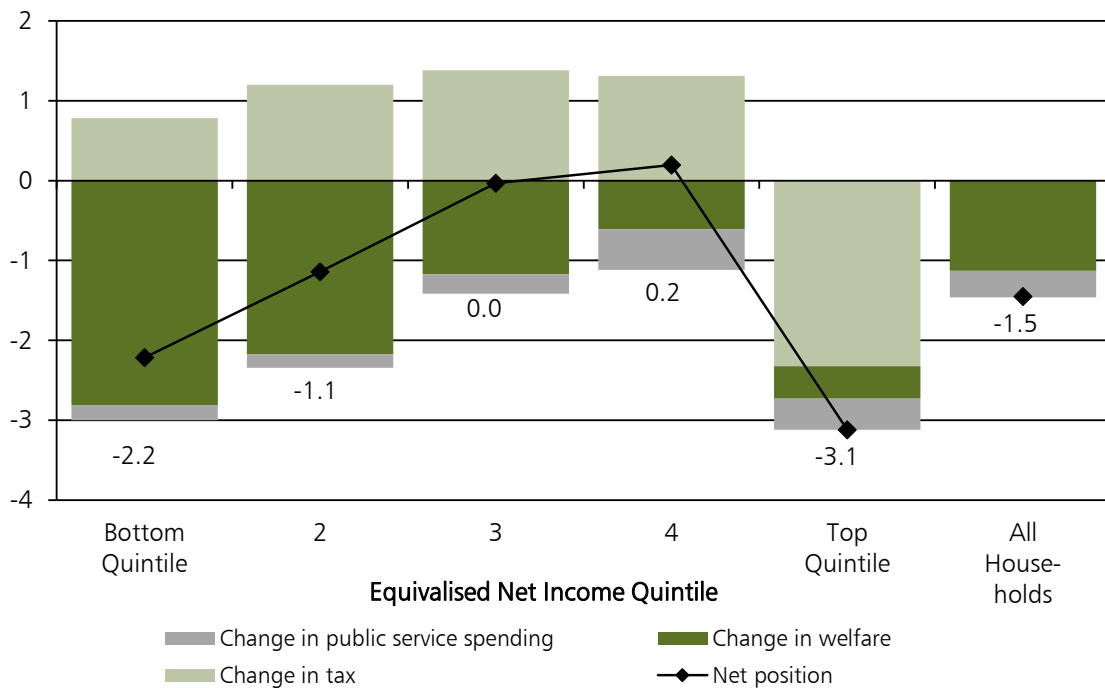
**2.20** This analysis is broader than the decile analysis presented in Charts 2.C to 2.F. It includes benefits in kind from public services, such as health and education, and it therefore provides the fullest assessment of the effects of all government interventions that have a direct impact on households. It also includes tax and welfare measures where the cost or saving to the Exchequer is above £300 million and which, due to data limitations, cannot be attributed to individual households but where the aggregate impact can be attributed across each income quintile. For these measures carefully considered assumptions are made to apportion the Exchequer impact by quintile. Those tax and welfare measures which cannot be microsimulated and have a scorecard impact of less than £300 million in 2015-16 are not included in the analysis.

**Chart 2.H: Cumulative overall impact of public service spending, tax, and welfare changes on households in 2015-16 in cash terms (£ per year), in 2010-11 prices, by income quintile**



Source: HM Treasury modelling

**Chart 2.I: Cumulative overall impact of public service spending, tax and welfare changes on households in 2015-16 as a percentage of 2010-11 net income (including households' benefits in kind from public services), by income quintile**



Source: HM Treasury modelling

**2.21** Charts 2.H and 2.I show that, as at previous fiscal events, households in the top quintile make the greatest contribution towards reducing the deficit, both in cash terms and as a percentage of their income and benefits in kind from public services. They also make the biggest contribution overall to funding public spending as shown in Chart 2.B. It can also be seen in Chart 2.H that the average cash loss in the top income quintile is greater than the cash losses in the remaining 4 income quintiles put together.

**2.22** In addition to those in the decile charts above, the quintile charts include the following Budget 2015 measures:

- spending to improve services for people with mental health conditions
- spending to support the provision of universal infant free school meals
- additional funding to support the new pension freedoms and the new state pensions guidance service, Pension Wise
- spending to protect vulnerable people from nuisance calls

**2.23** Like the decile analysis, the quintile analysis is presented for 2015-16, allowing for the cumulative impact of the government's changes to tax, welfare and public spending policy across the whole of this Parliament to be assessed.

**2.24** Charts 2.H and 2.I are not directly comparable to their equivalents at Autumn Statement 2014, due to the impacts of changes to the OBR economic assumptions and the updated public service spending plans for 2015-16. As such, comparisons do not show the impact of Budget 2015 decisions alone.



# 3 Data sources and methodology

3.1 In line with the government’s commitment to transparency, the tables below explain in detail the data sources and methodology used to produce each of the charts presented in this document. All figures in this document are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact. They are therefore outside the domain of official statistics.

**Table 3.A: Data sources and methodology**

| Section                                       | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Paragraph 1.6<br>(Equivalisation methodology) | <p>Equivalisation is a process that adjusts a household’s net income to take into account the size and composition of the household. This reflects the fact that larger households will require a higher net income to achieve the same economic well-being and standard of living as a household with fewer members.</p> <p>Net incomes are adjusted in comparison to a couple with no children, whose equivalised income is normalised at the same level as their unequivalised income. To calculate the net equivalised income for a household, each person is given a factor based on the position in the household relative to the head of the household and their age. The equivalence factors used in the analysis are the modified OECD factors (as used in the Department for Work and Pensions’ Households Below Average Income publication).</p> <p>These factors are shown below. Each household is given an overall factor by adding the factors for each person. The net income for the household is then divided by this factor to produce the net equivalised income figure for this household.</p> <p>Equivalisation factors:</p> <ul style="list-style-type: none"> <li>Single or cohabiting head of household 0.67</li> <li>Partner/spouse 0.33</li> <li>Other second adult 0.33</li> <li>Third adult 0.33</li> <li>Subsequent adults 0.33</li> <li>Child aged under 14 years 0.20</li> <li>Child aged 14 years and over 0.33</li> </ul> <p>For example, a household with a combined net income of £25,000 containing a couple and 2 children aged 7 and 15 years old will have a net equivalised income of around £16,340. This is calculated as follows:<br/>           Factor: <math>0.67 + 0.33 + 0.20 + 0.33 = 1.53</math><br/>           Net equivalised income: <math>£25,000 / 1.53 = £16,340</math></p> |
| Chart 1.A                                     | Source: Office for National Statistics. Data available online at: <a href="http://www.ons.gov.uk">www.ons.gov.uk</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Chart 2.A                                     | Source: Office for National Statistics, The Effects of Taxes and Benefits on Household Income (2007-08 to 2012-13).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| Chart 2.C, 2.D, 2.E and 2.F (Decile charts) | <p data-bbox="501 174 1399 300">Charts are on a United Kingdom basis, and cover the tax and welfare system in the UK. Where tax or welfare policy is devolved – such as where council tax is devolved – the current policy of the devolved government is reflected, but not shown as a change in the charts.</p> <p data-bbox="501 331 1399 456">Not all measures can be reliably modelled due to data and/or modelling constraints. Tax and welfare changes that can be modelled robustly at a household level are derived using HM Treasury’s tax and benefit static microsimulation model.</p> <p data-bbox="501 488 1399 837">The model uses data from the Living Costs and Food Survey (LCF) collected between April 2008 and March 2011. The small sample size of the LCF means that to be able to produce robust analysis 3 years of data have been pooled together. This data is then projected forward to reflect the financial year being modelled, using historical Annual Survey of Hours and Earnings (ASHE) data on earnings growth at different points across the distribution as well as the latest round of OBR average earnings and inflation forecasts. Individual employees are assumed to be paid at least the National Minimum Wage (NMW), which has been projected to 2015-16 in line with the OBR average earnings forecast. The model makes no changes to the underlying employment levels or expenditure patterns in the base data.</p> <p data-bbox="501 869 1399 1061">This dataset is used to model each household’s net income under a given and alternative tax and benefit system. The difference between the 2 results produces the change in net income for each household. Households are then allocated into deciles and the average (mean) change in net income for all the households in each decile is calculated. Allocation across deciles is conducted on the basis of income before the effect of this government’s measures.</p> <p data-bbox="501 1093 1399 1254">Incomes are estimated on a before housing cost basis. Expenditure analysis uses a measure of expenditure which includes a range of housing costs. However, no deduction is made from housing expenditure for households receiving housing benefit to reflect the fact that the housing benefit received is intended to cover this housing expenditure.</p> <p data-bbox="501 1285 1399 1447">The model assumes incomplete take-up of benefits and tax credits. A fuller description of the methodology for modelling incomplete take-up was set out in detail as part of HM Treasury’s Spending Round 2013 analysis, in Chapter 3 of ‘Impact on households: distributional analysis to accompany Spending Round 2013’, available at <a href="http://www.gov.uk">www.gov.uk</a>.</p> <p data-bbox="501 1478 1399 1572">Changes in indirect tax assume that the same quantity of goods and services are purchased and that all of the increase in indirect tax is passed through to consumers.</p> <p data-bbox="501 1603 1399 1729">The following measures have been included in the analysis for Charts 2.C, 2.D, 2.E and 2.F, in addition to those modelled at Autumn Statement 2014. Only those measures with a scorecard impact in 2015-16 are included in the decile analysis:</p> <ul data-bbox="549 1760 1299 1865" style="list-style-type: none"> <li>• alcohol duty: 1p off a pint of beer and 2% off cider duty</li> <li>• alcohol duty: reduce spirits duty by 2%, and freeze wine duty</li> <li>• fuel duty: cancel September 2015 RPI increase</li> </ul> |

| Section                                      | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| Chart 2.G<br>(Universal Credit)              | <p>This analysis considers the impact of Universal Credit by income decile by comparing simulated incomes under Universal Credit with incomes under the current system of benefits and tax credits. The 2 simulations take into account all policies announced prior to this Budget that take place before and during the introduction of Universal Credit. The analysis considers the impact of a fully rolled out 'steady state' Universal Credit. It has been carried out in the OBR certified microsimulation model, which uses 2014-15 as the year of analysis.</p> <p>Compared to the analysis published at Autumn Statement 2014, the impact of Universal Credit on net incomes published here shows small changes mainly due to policy updates and improved modelling.</p> <p>A fuller description of the methodology behind this chart was set out as part of HM Treasury's Autumn Statement 2013 analysis, in Chapter 3 of 'Impact on households: distributional analysis to accompany Autumn Statement 2013', available at <a href="http://www.gov.uk">www.gov.uk</a>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Charts 2.B, 2.H and 2.I<br>(Quintile charts) | <p>Charts are on a United Kingdom basis, but only include resource DEL (RDEL) spending in England. RDEL spending is the current budgetary constraint set for departments, within which they provide public services. Other RDEL spending is devolved to the governments in Scotland, Wales, and Northern Ireland, and is not reflected in this analysis.</p> <p>The quintile charts include around 90% of changes to tax and welfare that will have an impact on households in 2015-16. They include over 60% of RDEL spending in England in 2015-16. The analysis does not include administrative spending or spending on public goods because it is not possible to identify the direct benefits from these areas of spending for specific households.</p> <p>Tax and welfare changes that can be modelled robustly at a household level are derived using HM Treasury's tax and benefit static microsimulation model, as described above for Charts 2.C to 2.F.</p> <p>Other additional tax and welfare measures are modelled by apportioning to quintiles the Exchequer costs or savings from the measures, based on carefully considered assumptions about where the impacts are likely to fall. This applies to those tax and welfare measures which have a scorecard impact of more than £300 million in 2015-16, and where it is possible to make reasonable assumptions about how households in different quintiles will be affected. For example, for pensions tax relief it is assumed that the impact of the reform falls only on households in the top quintile. For reforms to Employment Support Allowance and Disability Living Allowance, where changes relate primarily to eligibility, this has been done on the basis of the distribution of benefit claimants. Those tax and AME measures which cannot be microsimulated and have a scorecard impact of less than £300 million in 2015-16 are not included in the analysis.</p> <p>The analysis of RDEL spending compares spending in 2010-11 and 2015-16 in real terms, by deflating 2015-16 spending figures to 2010-11 prices using the OBR's latest forecasts for the GDP deflator. Each line of spending has been updated for this Budget to reflect the latest public service spending plans for 2015-16.</p> <p>At Autumn Statement 2014, HM Treasury introduced a new improved model for analysing spending on public services. For more information on the approach to this analysis, see HM Treasury's Autumn Statement 2014 analysis, 'Impact on households: distributional analysis to accompany Autumn Statement 2014', available at <a href="http://www.gov.uk">www.gov.uk</a>. Moreover, the document published at Spending Review 2010 set out the general principles behind this analysis.</p> |

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| Charts 2.B, 2.H and 2.I (Quintile charts) – continued | <p data-bbox="499 163 1398 360">At Autumn Statement 2014, HM Treasury introduced a new improved model for analysing spending on public services. For more information on the approach to this analysis see HM Treasury’s Autumn Statement 2014 analysis, ‘Impact on households: distributional analysis to accompany Autumn Statement 2014’, available at <a href="http://www.gov.uk">www.gov.uk</a>. Moreover, the document published at Spending Review 2010 set out the general principles behind this analysis.</p> <p data-bbox="499 389 1398 586">The RDEL analysis covers many of the services delivered by the Department of Health, the Department for Education, the Department for Work and Pensions, the Department for Communities and Local Government, the Department for Business, Innovation and Skills, the Department for Transport, Local Government, the Ministry of Justice, the Department for Energy and Climate Change, the Department for Culture, Media and Sport, and HM Treasury.</p> <p data-bbox="499 616 1398 871">The modelling does not include spending by the Ministry of Defence, the Home Office, the Cabinet Office, the Foreign and Commonwealth Office, the Department for International Development, HM Revenue and Customs, the Department for Environment, Food and Rural Affairs, the Law Officers’ Department and Independent Bodies. In many cases the nature of the services provided by these departments means it is not possible to identify specific end-users, as they benefit the population as a whole; in others, the services do not directly affect households.</p> <p data-bbox="499 900 1398 1001">In addition to those measures modelled at Autumn Statement 2014, and the Budget 2015 measures included in the decile analysis, the quintile charts include the following measures:</p> <ul data-bbox="549 1030 1398 1196" style="list-style-type: none"> <li>• spending to improve services for people with mental health conditions</li> <li>• spending to support the provision of universal infant free school meals</li> <li>• additional funding to support the new pension freedoms and the new state pensions guidance service, Pension Wise</li> <li>• spending to protect vulnerable people from nuisance calls</li> </ul> <p data-bbox="499 1225 1398 1258">Spending funded through the reserve is not captured in this analysis.</p> <p data-bbox="499 1288 1398 1641">Since Autumn Statement 2013, the quintile charts have included measures aimed at reducing tax avoidance where these measures represent a substantive change in tax policy and have a direct impact on households. No additional measures aimed at reducing tax avoidance have been included since the Autumn Statement 2014 publication. The avoidance accelerator, which relates to tax liabilities which accrue in different years to when the tax is paid, continues to be excluded from this analysis. A fuller description of the methodology and criteria used to include these measures was set out in detail as part of HM Treasury’s Autumn Statement 2013 analysis, in Chapter 3 of ‘Impact on households: distributional analysis to accompany Autumn Statement 2013’, available at <a href="http://www.gov.uk">www.gov.uk</a>.</p> <p data-bbox="499 1671 1398 1834">Chart 2.B is constructed using the same modelling inputs and assumptions as Charts 2.H and 2.I and so includes all taxes, transfer payments, and public service spending captured elsewhere in HM Treasury’s analysis. By construction, the differences between the ‘before consolidation’ and ‘after consolidation’ data points in Chart 2.B equate to the percentage changes in Chart 2.I.</p> <p data-bbox="499 1863 1398 2016">The denominator used in Chart 2.B captures household income after taxes and benefits, including benefits in kind from public service spending before this government’s policy changes. The denominator also includes an adjustment for income through tax avoidance which is likely to be underreported in survey data. This was chosen for consistency with Charts 2.H and 2.I.</p> |

| Section                                               | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Charts 2.B, 2.H and 2.I (Quintile charts) – continued | <p>In all charts households are ranked according to their income, following deductions for direct tax and additions through welfare. Benefits in kind from public services are not used in the calculation to determine a household's position on the income distribution. For Charts 2.B and 2.I, where change is expressed as a proportion of income, that income does include the income from benefits in kind from public services, plus an additional amount of income to adjust for the fact that our survey data may not fully capture the amount of income that is available to households through tax avoidance.</p> <p>Chart 2.B shows that on average, households receive more from welfare and spending on public services than they contribute in tax. This is in part because the chart only captures the tax taken from households (not businesses), whereas transfer payments and public services are funded by all taxes (including those paid by businesses).</p> |

**3.2** Table 3.B below shows the median gross income (private income, including earnings, private pensions, savings and investments, plus benefit income) for different household types in each net equivalised income decile.

**3.3** The incomes in HM Treasury's analysis are calculated on a net equivalised income basis (i.e. after tax and benefits) to better capture households' standard of living. The table below shows median gross (pre-tax) incomes within each decile, which gives a less precise estimation of a household's position on the income distribution than net income but, because many people think about their incomes or salaries in gross rather than net terms, is easier to understand.

**3.4** Table 3.B should therefore be used to approximate where a household will be found in the income distribution. For example, if a household consisting of 2 adults earns £27,600 per year between them, there is a high likelihood that this household will be found in the fifth income decile. However, this is not guaranteed, because different gross household incomes can result in different net household incomes, depending on how many earners there are in the household, the size of the household, and which benefits the household qualifies for.

**Table 3.B: Median gross income for each decile (£ per year, 2015-16) for different household compositions**

| Median gross income of households in decile | 1 adult (£) | 1 adult and 1 child (£) | 2 adults (£) | 2 adults and 1 child (£) | 2 adults and 2 children (£) |
|---------------------------------------------|-------------|-------------------------|--------------|--------------------------|-----------------------------|
| Top decile                                  | 60,200      | 77,000                  | 88,200       | 112,800                  | 146,500                     |
| Ninth decile                                | 39,900      | 47,900                  | 58,500       | 75,500                   | 89,800                      |
| Eighth decile                               | 31,300      | 43,800                  | 46,800       | 60,100                   | 70,600                      |
| Seventh decile                              | 25,100      | 31,300                  | 38,200       | 49,600                   | 60,400                      |
| Sixth decile                                | 21,100      | 27,300                  | 32,400       | 42,600                   | 51,000                      |
| Fifth decile                                | 17,900      | 24,400                  | 27,600       | 36,200                   | 44,800                      |
| Fourth decile                               | 15,300      | 21,000                  | 23,300       | 30,900                   | 37,600                      |
| Third decile                                | 13,400      | 17,500                  | 20,200       | 26,700                   | 32,300                      |
| Second decile                               | 11,400      | 14,700                  | 17,300       | 21,900                   | 27,000                      |
| Bottom decile                               | 8,800       | 10,800                  | 13,400       | 15,600                   | 20,100                      |

Source: HM Treasury microsimulation model





## **HM Treasury contacts**

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