HM Treasury

Impact on households:

Distributional analysis to accompany Summer Budget 2015

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July 2015

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Contents

1   Impact on households

1.1 This document presents the impacts of government policy across the household income distribution. It considers how policy decisions affect the share of tax and public spending paid by and received by households. It includes benefits in kind from public service spending that accrue to households in each income quintile and the share of taxes paid by each income quintile. It includes policy decisions since June Budget 2010, up to and including the 2015 Summer Budget. It also includes the effects of policies that were announced before the June Budget 2010 and were implemented in the last Parliament, in order to present the impacts of the fiscal consolidation as a whole. The analysis is presented for 2017-18.

1.2 The analysis has been published online as a separate supplementary document to the Summer Budget.

Impact on households

1.3 The analysis in Charts 1.A, 1.B and 1.C considers the distributional impacts on households of government policy by comparing the share of public spending accruing to each income quintile and the share of taxes paid by each income quintile under the 2010-11 system with the system in 2017-18. By considering relative proportions rather than cash amounts, it starts from the premise that all public spending has to be funded, whether through current, past or future revenues.

1.4 The analysis takes a different approach from that published by HM Treasury in the last parliament. The new analysis demonstrates the effect of government decisions on the distribution of tax and spending, abstracting from the level of government borrowing. Under the previous framework, an extra pound of borrowing would appear as a gain to households. But higher spending or lower taxes today would increase the deficit and the debt burden, with consequences for households in the future. For these reasons, the charts presented in this section offer an assessment of how public spending and taxes are distributed, rather than the amounts people receive.

1.5 The analysis divides households into five income groups, called quintiles, ordered from the fifth of households with the lowest incomes to the fifth of households with the highest incomes. Incomes are first adjusted through a process called equivalisation. The steps involved in this process are set out in Chapter 2.

1.6 Chart 1.A shows the distribution of public spending that directly benefits households and the distribution of the taxes that they pay under the 2010-11 system, and how these distributions will have changed under the 2017-18 system as a result of policy decisions. The first series (labelled 2010-11) shows what the distributions would have looked like without any policy changes since 2010-11. The second series (labelled 2017-18) then adds in the policy changes. Differences between these two series can therefore be attributed to policy decisions. The figures behind this chart are set out in Table 1.A.

1.7 If public spending were spread completely evenly, so that every household received exactly the same amount of welfare and public service spending, then all the spending bars in the chart would be 20% as indicated by the dashed line. This also applies to the tax bars.

1.8 Chart 1.A shows that the proportion of public spending received by households in each income quintile remains similar between 2010-11 and 2017-18, indicating that reductions in public spending since the start of the last Parliament have not altered its overall distribution. In

contrast, the distribution of taxes paid has shifted, resulting in the richest 20% of households paying over 50% of taxes in the 2017-18 system.
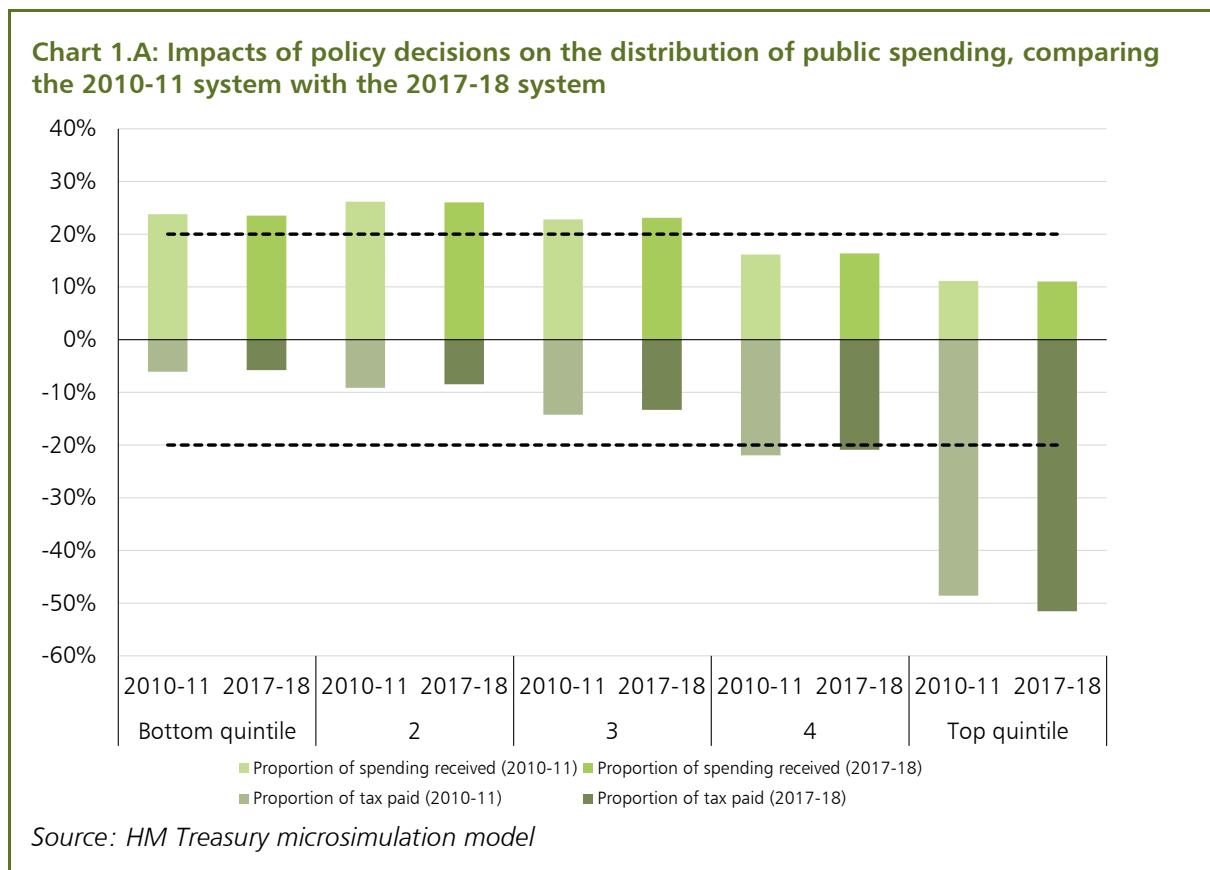
Chart 1.A: Impacts of policy decisions on the distribution of public spending, comparing the 2010-11 system with the 2017-18 system

Legend:
- Proportion of spending received (2010-11)
- Proportion of spending received (2017-18)
- Proportion of tax paid (2010-11)
- Proportion of tax paid (2017-18)

Source: HM Treasury microsimulation model

Table 1.A: Proportion of spending received and tax paid in each income quintile, comparing the 2010-11 system with the 2017-18 system

	Bottom quintile		2		3		4		Top quintile	
	10-11	17-18	10-11	17-18	10-11	17-18	10-11	17-18	10-11	17-18
Spending received	24%	24%	26%	26%	23%	23%	16%	16%	11%	11%
Tax paid	6%	6%	9%	8%	14%	13%	22%	21%	49%	52%

Source: HM Treasury microsimulation model

1.9 We can conclude from Chart 1.A and Table 1.A that

- Government reforms since 2010-11 have not changed the distribution of public spending

- Half of all spending on public services goes to the poorest 40 percent of households

- The richest 20 percent of households will be paying a greater proportion of taxes in 2017-18 than in 2010-11

- In 2017-18 the richest 20 percent of households contribute as much in taxes as all the remaining income quintiles put together.

- As the richest are paying an increasing share of taxes, those in the remaining quintiles will be paying a smaller share. This is due to the increases to the personal allowance and policies that increase taxes on the richest

1.10 The spending bars in Chart 1.A comprise spending on both public services, such as the NHS, schools, and early years childcare, as well as welfare spending, such as the state pension, out of work and disability benefits, and tax credits. It treats negative tax items – such as council tax support - as part of public spending. Chart 1.B breaks these bars into their constituent parts to demonstrate the difference in the distributions of each type of spending, and how these have changed since 2010-11 as a result of government policy. Table 1.B shows the proportions of welfare and public spending received by each income quintile.

1.11 Once again, the shape of a perfectly even distribution of spending (20% in each quintile) is indicated by the dashed line. The fact that bars for the lower income quintiles are above this line, and for higher income quintiles are below, demonstrates that the bulk of public spending provides support for lower income families.
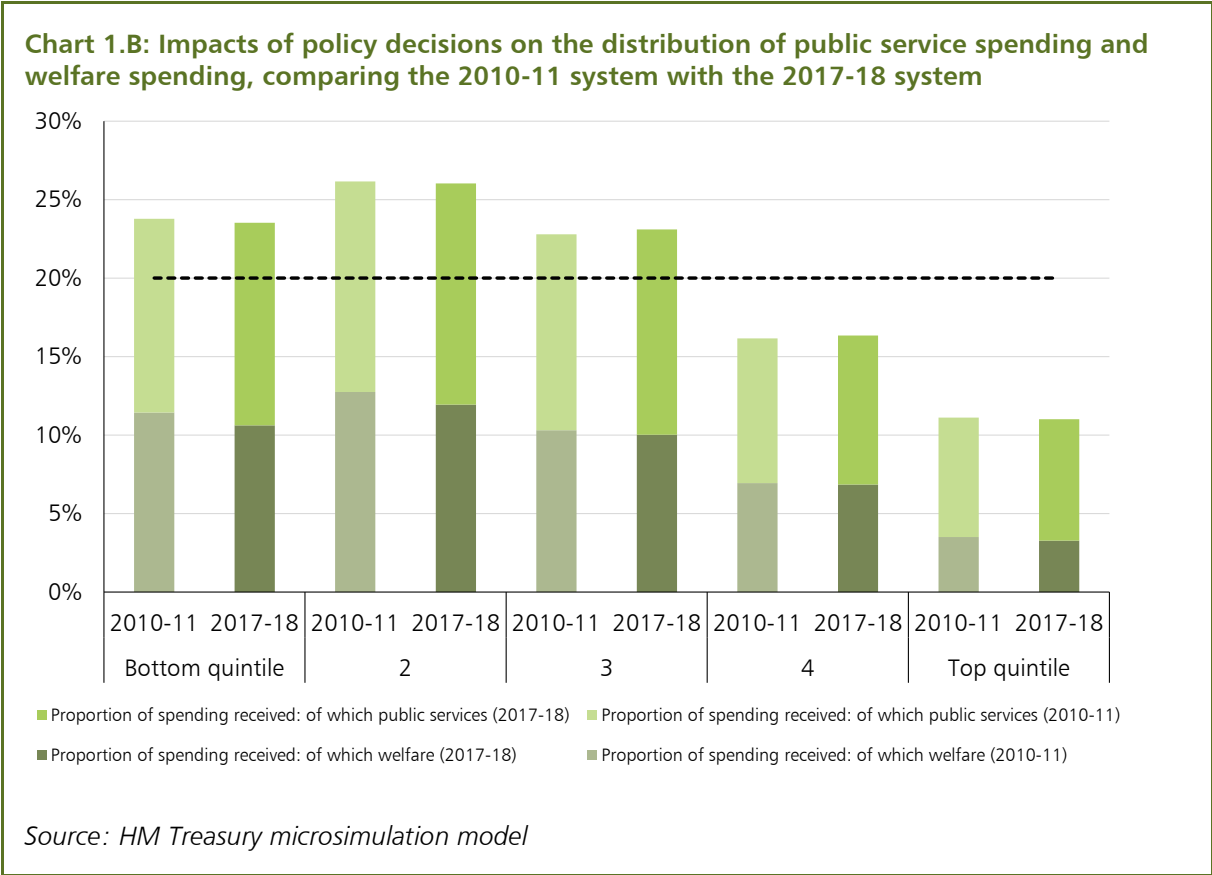
Chart 1.B: Impacts of policy decisions on the distribution of public service spending and welfare spending, comparing the 2010-11 system with the 2017-18 system

■ Proportion of spending received: of which public services (2017-18) ■ Proportion of spending received: of which public services (2010-11)

■ Proportion of spending received: of which welfare (2017-18) ■ Proportion of spending received: of which welfare (2010-11)

Source: HM Treasury microsimulation model

Table 1.B: Proportion of welfare and public service spending received in each income quintile, comparing the 2010-11 system with the 2017-18 system

	Bottom quintile		2		3		4		Top quintile	
	10-11	17-18	10-11	17-18	10-11	17-18	10-11	17-18	10-11	17-18
Welfare	11%	11%	13%	12%	10%	10%	7%	7%	4%	3%
Public services	12%	13%	13%	14%	12%	13%	9%	9%	8%	8%

Source: HM Treasury microsimulation model

1.12 Chart 1.B shows that the distributions of spending on both public services and welfare peak in quintile 2. This is because this quintile includes a lot of families with children who receive a relatively large share of public spending, notably through education.

1.13 The chart also shows that spending on public services falls more evenly across the income distribution than welfare, which is more heavily concentrated in the lower income quintiles. The reason for this is that the majority of public service spending goes towards services that can be considered as universal, such as health and education, while a significant amount of welfare spending is means-tested.

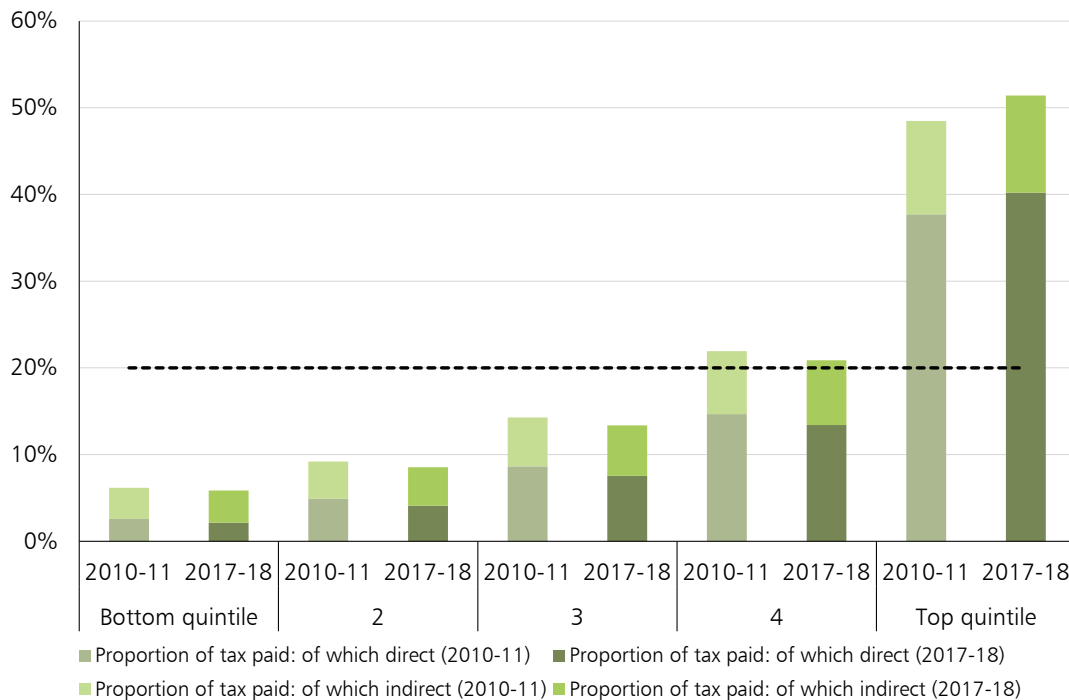1.14 We can conclude from Chart 1.B that:

- Government reforms since 2010-11 have not changed the distribution of public spending, with around half of all spending on public services going to the poorest 40 percent of households

- While spending on both welfare and public service are progressive, spending on public services is less progressive than spending on welfare. This is because a large part of public service spending goes on services of a universal nature, like the NHS

- The means-testing of much of welfare spending means that its distribution is more skewed towards the lower income quintiles than is the distribution of benefits in kind from public services. Spending on welfare that benefits households higher up the income distribution is largely pensions

- At the lower end of the income distribution, support has shifted since 2010-11 from cash transfers through welfare, to benefits in kind from public services

1.15 The tax bars in Chart 1.A comprise both direct and indirect taxes[1] paid by households. Chart 1.C breaks these bars into their constituent parts to demonstrate the difference in the distributions of each type of taxation, and how each has changed since 2010-11 as a result of government policy. Unlike in Chart 1.A, these are expressed as positive values, so a more positive (taller) bar on this chart indicates a greater proportion of taxes being paid. Table 1.C shows the proportions of direct tax and indirect tax respectively paid by each income quintile.

1.16 The chart shows that the highest income households pay the bulk of taxes; in fact, the highest income quintile pays more that all the other quintiles put together under the 2017-18 system.

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[1] Direct tax is defined as tax which is directly incident upon, and paid by, households to the Exchequer. Income tax, for example, is drawn directly from an individual's income. Indirect tax is paid by a third party. For example, Value Added Tax (VAT) is paid by businesses to the Exchequer, but the costs of this tax are passed through into prices, and therefore onto households.

Chart 1.C: Impacts of policy decisions on the distribution of direct and indirect taxes, comparing the 2010-11 system with the 2017-18 system

Legend:
- Proportion of tax paid: of which direct (2010-11)
- Proportion of tax paid: of which direct (2017-18)
- Proportion of tax paid: of which indirect (2010-11)
- Proportion of tax paid: of which indirect (2017-18)

Source: HM Treasury microsimulation model

Table 1.C: Proportion of direct and indirect taxes paid by each income quintile, comparing the 2010-11 system with the 2017-18 system

	Bottom quintile		2		3		4		Top quintile	
	10-11	17-18	10-11	17-18	10-11	17-18	10-11	17-18	10-11	17-18
Direct tax	3%	2%	5%	4%	9%	8%	15%	13%	38%	40%
Indirect tax	4%	4%	4%	4%	6%	6%	7%	7%	11%	11%

Source: HM Treasury microsimulation model

1.17 Chart 1.C shows that the majority of taxes paid, particularly at the higher end of the income distribution, are direct taxes. Because the lowest income households are often exempt from Income Tax and National Insurance contributions, households in the lowest income quintiles tend to pay a greater proportion of indirect tax than direct tax.

1.18 The difference between the 2010-11 series and 2017-18 series shows that the proportion of taxes paid by the highest income quintile has risen as a result of policy changes, and that this has largely been due to increases in direct tax. By contrast, the proportion of direct taxes paid by households in lower income quintiles has fallen. This is largely due to increases in the personal allowance.

1.19 We can conclude from Chart 1.C that:

- The richest 20 percent will be paying a greater proportion of taxes in 2017-18 than in 2010-11 as a result of government policy

- As the richest are paying an increasing share of taxes, those in the remaining quintiles will be paying a smaller share. In fact, the proportion of direct tax paid by the bottom quintile
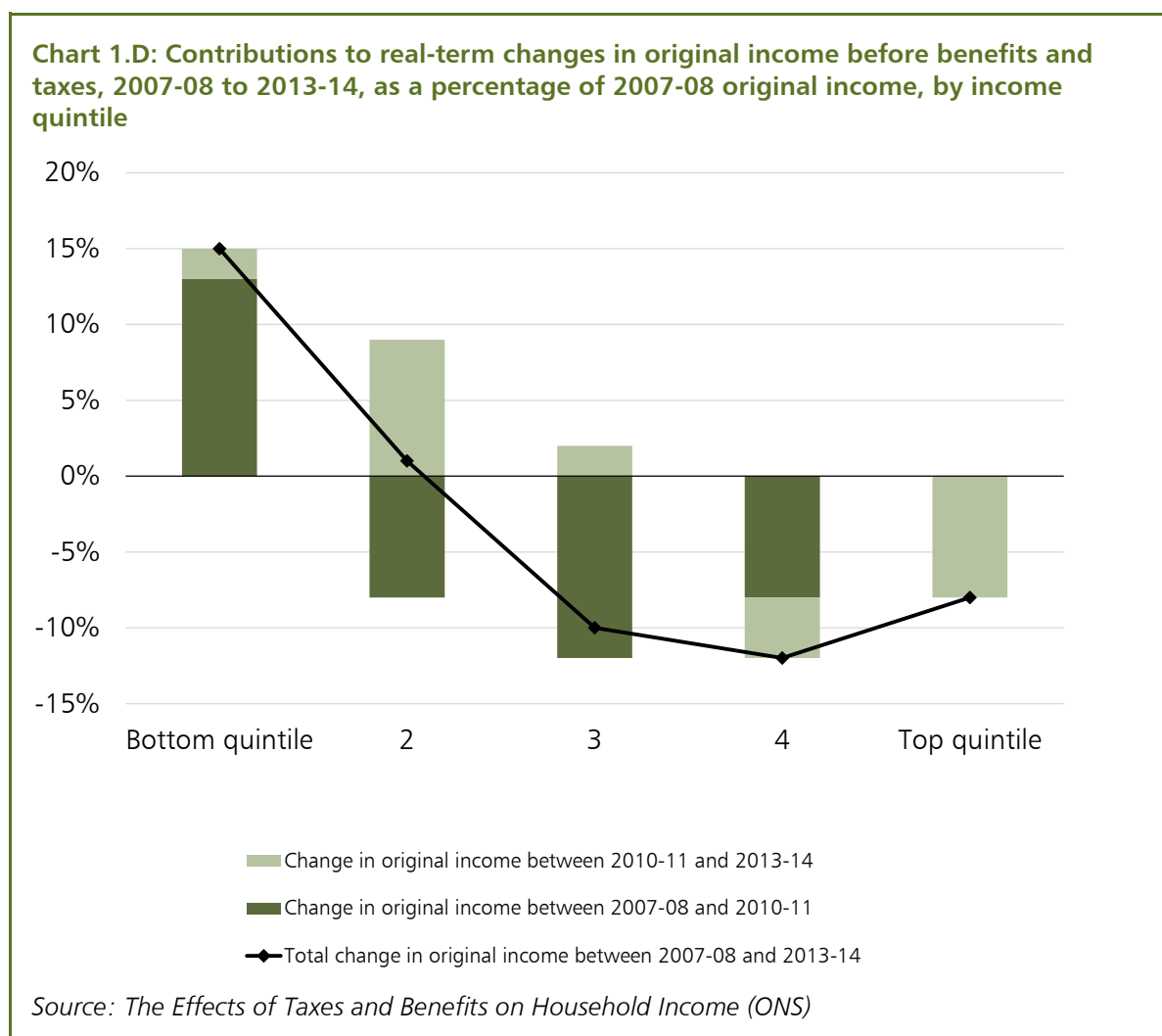
has fallen due to the increases to the personal allowance and policies that increase taxes on the richest

- The distribution of indirect taxes by income quintile remains similar between the 2010-11 system and the 2017-18 system

Wider economy changes

1.20 By focusing on the impacts of government policy without taking into account how wider changes in the economy are affecting households, the charts in the previous section only present part of the picture. This section draws on a range of data sources to provide the wider economic context.

1.21 Chart 1.D presents the distribution and level of original (underlying) incomes from the market, i.e. earnings, private pensions, and incomes from savings and investments, between 2007-08 and 2013-14, the final year for which data by income quintile are available. This sense of how household incomes have changed over this earlier period provides a backdrop for considering the effects of the government's tax and spending decisions presented in the previous section.

Chart 1.D: Contributions to real-term changes in original income before benefits and taxes, 2007-08 to 2013-14, as a percentage of 2007-08 original income, by income quintile

Change in original income between 2010-11 and 2013-14

Change in original income between 2007-08 and 2010-11

Total change in original income between 2007-08 and 2013-14

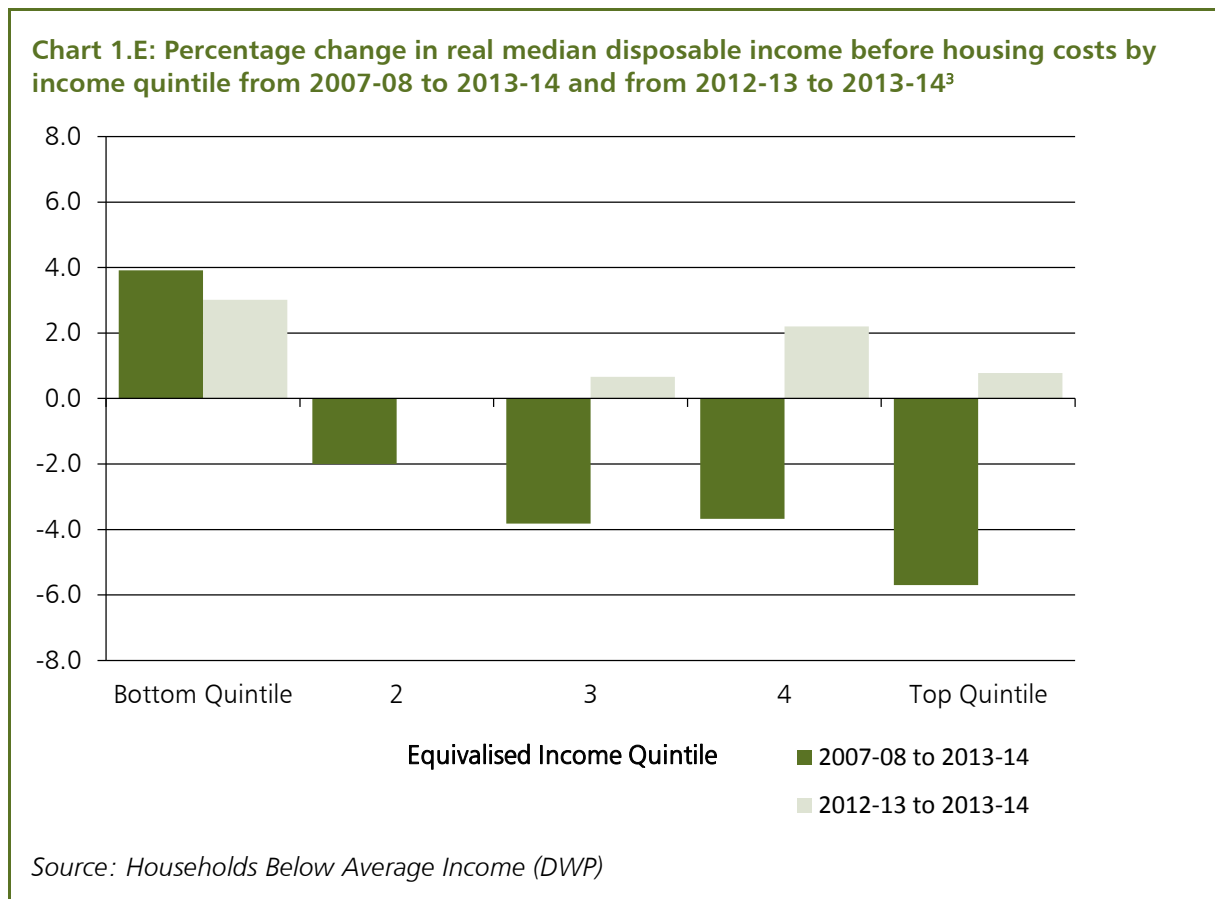*Source: The Effects of Taxes and Benefits on Household Income (ONS)*

1.22 The chart shows that:

- On average, households in the top 3 quintiles saw the largest reductions in real original income between 2007-08 and 2013-14

- on average, households in the bottom 2 quintiles saw their incomes protected against the effects of inflation

1.23 The trend in original incomes can be explained by a combination of increases to the national minimum wage, increases in private pensions and a fall in worklessness during this period. There were 271,000 fewer workless households in April-June 2014, compared to a year beforehand.[2] This is the largest recorded fall in workless households since records began in 1996.

1.24 Chart 1.E shows changes in disposable incomes, which captures trends in incomes from benefits and taxes paid, as well as in original incomes. It considers changes from 2007-08 to 2013-14 and from 2012-13 to 2013-14, across the equivalised income distribution.

Chart 1.E: Percentage change in real median disposable income before housing costs by income quintile from 2007-08 to 2013-14 and from 2012-13 to 2013-14[3]

Source: Households Below Average Income (DWP)

1.25 Chart 1.E shows that:

- The poorest fifth of households saw their incomes increase in real terms between 2007-08 and 2013-14, while incomes fell across the rest of the income distribution

- Recent income growth was also strongest among the poorest households: in 2013-14, real median household income in the poorest fifth of the income distribution rose by 3%, the strongest growth in any income quintile[4]

- Further up the income distribution, there are signs that earnings growth has recently improved, translating into real terms increases in household income for working households

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[2] Source: Working and Workless Households (ONS)
[3] Incomes have been deflated using CPI.
[4] Source: Households Below Average Income 2015 (DWP)

1.26 This strong income growth at the bottom of the income distribution, coupled with an increase in the share of tax paid by the rich, and tax and public spending that remains broadly as progressive as in 2010-11, combine to produce a picture of falling inequality across both original income and disposable income.

1.27 This means that:

- Original income inequality is at its lowest point since 1989

- In 2013-14, original income inequality fell by 0.19pts on the Gini[5] measure, to 0.503: this is the largest year-on-year fall in the Gini measure of original income inequality on record

- Disposable income inequality rose and fell slightly in the late 1990s and early 2000s, but has fallen steadily since 2008-09

- In 2013-14, disposable income inequality was lower that it was in 2009-10

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[5] The Gini co-efficient is a widely used measure of inequality. It ranges between 0 and 1, where 0 indicates a state where all income is shared equally, whilst 1 indicates a state where all income is concentrated in just one person.

2 Data sources and methodology

2.1 The tables below explain in detail the data sources and methodology used to produce 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 2.A: Date sources and methodology

Section	Details
Paragraph 1.6 (Equivalisation methodology)	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.
	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 their position in the household relative to the head of the household and their age. The equivalisation factors used in the analysis are the modified OECD factors (as used in the Department for Work and Pensions' Households Below Average Income publication).
	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.
	Equivalisation factors:
	Single or cohabiting head of household 0.67 Subsequent adults 0.33 Child aged under 14 years 0.20 Child aged 14 years and over 0.33
	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: Factor: 0.67+0.33+0.20+0.33 = 1.53 Net equivalised income: £25,000 / 1.53 = £16,340

| Chart 1.A, 1.B, 1.C and Tables 1.A, 1.B and 1.C | Broadly, the tax and benefit is analysed on a United Kingdom basis, while the analysis of public services covers England only as public service spending is devolved.

The model uses data from the Living Costs and Food Survey (LCF). 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.

Throughout the analysis, individual employees are assumed to be paid at least the appropriate level of the National Minimum Wage or National Living Wage, which has been uprated from announced levels to 2017/18 based on the OBR forecast for average earnings. The model makes no changes to the underlying employment levels or expenditure patterns in the base data. This dataset is used to model each household's net income under a given and alternative tax and benefit system.

The impacts of tax and welfare measures that can be modelled robustly at a household level are derived using HM Treasury's tax and benefit static microsimulation model.

Any other 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.

For example, the limiting of pensions tax relief for those with gross incomes above £150k is assumed to impact only on households in the top income quintile while, in the absence of more detailed data, the impact of changes to vehicle excise duty (VED) are apportioned across the distribution of existing VED liability as published by the ONS. Those tax and welfare measures from the last Parliament which could not be microsimulated and had a scorecard impact of less than £300 million in 2015-16 were not included in the analysis.

The analysis of public service spending considers changes in real terms over the last Parliament, using the OBR's latest forecasts for the GDP deflator to express changes in constant prices. To this it adds policy measures that have been announced as part of Summer Budget (see full list below).

At Autumn Statement 2014, HM Treasury introduced a new improved model for analysing spending on public services, which has been used in this analysis. 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 www.gov.uk.

The charts are derived by combining the impacts of all tax, welfare, and public spending decisions since June Budget 2010, in order to present the impacts of all the current and coalition government's consolidation decisions. This analysis is modelled in two stages. First, we take the impacts over the 2010-2015 Parliament that were calculated at Budget 2015. In this stage, we used LCF input data that covers 2008-09 to 2010-11 in order to construct the baseline and the impacts of policy changes through to 2015-16 announced in the last Parliament. Second, impacts from Summer Budget 2015 are estimated on top of this. In this second stage the newest available LCF input data, covering 2010-11 to 2012-13, is used, and the counterfactual is updated to be the policy world at the end of the 2010 to 2015 Parliament. |

The two sets of impacts are combined with the modelling of the 2010-11 baseline, and all figures are converted into the same year's price terms (2015-16). This two-stage approach ensures that analysis of policy decisions in the current Parliament is underpinned by the data that most accurately reflects the present composition of the underlying population, while avoiding the double counting of policy impacts that would occur in trying to re-run analysis from the last Parliament on the new data.

The following measures have been included in the analysis in addition to those modelled at the 2015 Budget. Only those measures with an impact in 2017-18 are included in the analysis:

Tax

- Personal allowance: increase to £11,000 in 2016-17, with equal gains to higher rate taxpayers
- Higher Rate Threshold: increase to £43,000 in 2016-17
- Pensions tax relief: restrict for gross income over £150,000 from 2016-17
- Rent-a-room relief: increase to £7,500
- Dividends tax: abolish credit, introduce new £5,000 allowance, and increase effective rates by 7.5pp
- Residential property: restrict finance relief to basic rate, phase from 2017
- Residential property: reform wear and tear allowance
- Insurance Premium Tax: increase by 3.5pp to 9.5%
- VED: reform for new cars purchased from 2017, hypothecated to roads fund from 2021
- Non-domiciles: abolish permanent status
- Capital Gains Tax: avoidance by private equity and hedge funds

Welfare*

- Childcare: 30 hour entitlement for working parents of 3 and 4 year olds (AME consequentials in DEL model)
- Uprating: freeze working-age benefits, tax credits and Local Housing Allowances for 4 years from 2016-17
- Benefit cap: reduce to £20,000, and £23,000 in London
- Support for Mortgage Interest: change from welfare payment to loan; maintain capital limit at £200,000 (N.B. loan has no impact in 17-18)
- Align Work-Related Activity Group rate with JSA for new claims
- Discretionary Housing Payments (DEL spend)
- Other welfare funding - including Youth Obligation and extra JCP support
- Reduce income rise disregard in tax credits
- Limit child element to 2 children for new births in tax credits
- Remove family element in tax credits, and the family premium in Housing Benefit, for new claims
- Increase tax credits taper rate to 48%
- Reduce income thresholds in tax credits

*This analysis includes the impact of the Summer Budget welfare announcements modelled on the existing (legacy) benefit system and therefore assumes that no households have been migrated across to Universal Credit, instead capturing the impact of the tax credit measures on those households that would have migrated to UC in reality. The majority of changes to tax credits have been replicated in Universal Credit, and the impacts will be broadly similar.

Public service spending

- Childcare: 30 hour entitlement for working parents of 3 and 4 year olds
- Increase in NHS funding of £10bn in real terms by 2020**
- Extending parent conditionality
- Higher education: additional maintenance loans for students
- The Youth Obligation

** At summer Budget 2015 the Government committed to increase real terms funding to the NHS by £10bn a year compared to 2014-15. The exact profile of this additional funding will be determined at the next Spending Review. For

modelling purpose it is assumed in the analysis that the government will spend an extra £3.3bn in 2017-18 compared to 2015-16. This is based on a smooth gradual increase in spending. The funding scenario used is purely indicative for the purposes of this modelling.

This analysis does not capture:
- Changes to regulation (e.g. the National Living Wage, Pay to Stay) which are not changes in tax or public spending
- Inheritance taxes and changes to them, as the liability falls on deceased people who do not form part of the analysis and an attempt to capture the effects by modelling them as incident on the recipient of the bequest would distort the analysis by presenting a one-off tax on wealth as a change in income
- Capital and administrative spending
- Spending funded through the reserve

The charts include measures aimed at reducing tax avoidance where these measures represent a substantive change in tax policy and have a direct impact on households. 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 www.gov.uk.

In line with the other tax and welfare measures that are microsimulated, the static, accruals-based costings for dividends tax, non-domiciles (abolish permanent status), residential property, and capital gains tax (avoidance by private equity and hedge funds) are used in this analysis. In each of these cases, the policy change comes into effect from 2017-18. For measures on non-domiciles, residential property, and capital gains tax the tax liability arises in 2017-18, and for consistency with the rest of this analysis we present the additional tax that becomes liable in the year it becomes liable, rather than the tax that is paid to the Exchequer. In the case of dividends tax, this policy also comes into effect in 2017-18. The Office for Budget Responsibility expects that this measure will result in a significant behavioural response, as individuals bring forward dividend income into 2016-17. We have presented the static, non-behavioural impact of this policy, as it is most representative of the real loss in household income that results from this policy in steady state.

In this chart 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.

Chart 1.D	The Effects of Taxes and Benefits on Household Income (ONS). 1.1 The data sources used to produce Charts 1.D and 1.E are different from each other and from that used for Charts 1.A, 1.B and 1.C. For this reason, the population within each quintile group in the HM Treasury distributional analysis in the first section of this document will not be identical to the population in the corresponding quintile in the charts in this Wider Economy section
Chart 1.E	Source: Households Below Average Income (DWP).

2.2 Table 2.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 quintile.

2.3 The incomes in this 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 quintile, 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.

2.4 Table 2.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 £30,900 per year between them, there is a high likelihood that this household will be found in the third income quintile. 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 2.B: Median gross income for each income quintile for different household compositions (£ per year, 2017-18)

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 quintile	47,900	59,300	74,500	95,000	118,400
Fourth quintile	29,400	40,600	44,500	58,600	70,700
Third quintile	20,300	26,200	31,000	41,100	50,200
Second quintile	14,700	19,700	22,600	28,700	36,100
Bottom quintile	10,000	14,300	15,600	19,600	24,800
Source: HM Treasury microsimulation model					