



HM TREASURY

Spending Review 2010

Distributional Impact Analysis – Data Sources

October 2010



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Distributional Impact Analysis – Data Sources

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Key definitions and data sources for analysis

Demographic information (population size, number of households etc.)	Family Resources Survey – 2007-08 and 2008-09	Calculations based on demographic data taken from Family Resources Survey. Latest data available at: http://statistics.dwp.gov.uk/asd/frs/2008_09/frs_2008_09_report.pdf	
Income quintile/decile information, size of average household	Family Resources Survey – 2007-2008 and 2008-09	Calculations based on demographic data taken from Family Resources Survey. Latest data available at: http://statistics.dwp.gov.uk/asd/frs/2008_09/frs_2008_09_report.pdf	
	Expenditure and Food Survey – 2005-2008	Available at: http://www.statistics.gov.uk/downloads/theme_social/Family_Spending_2007/FamilySpending2008_web.pdf	Households are ordered by their household equivalised income and then divided into 10 equally sized groups called deciles or 5 equally sized groups called quintiles.
Income quintile and decile analysis of tax, tax credit and benefit changes		Income quintile and decile analysis has been simulated using HM Treasury's tax and benefit micro-simulation model. The model uses data from the Family Resources Survey (FRS – 2007-08) and Expenditure and Food Survey (EFS) collected between April 2005 and March 2008 (future editions of the EFS are to be known as the Living Costs and Food Survey). The small sample size of the EFS means that to be able to produce robust analysis three years of data has been pooled together. This data is then uprated appropriately to reflect the tax year being modelled. This dataset is then used to model each household's net income under a given and alternative tax and benefit system. The difference between the two results produces the change in net income for each household. Households are then allocated into quintiles/deciles (see entry above) and the average (mean) change in net income for all the households in each quintile/decile is calculated. The model assumes no changes in behaviour to employment, income or spending choices. The model assumes 100 per cent take up of tax credits	

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Equivalisation methodology			<p>and benefits. 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. The model under-represents the number of pensioners in the country as the FRS does not capture people with communal living arrangements. There are known issues with the FRS under-recording tax credit receipt. For example, see http://www.ifs.org.uk/bns/bn70.pdf</p>
			<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. With the exception of child poverty analysis, which follows the modified OECD equivalisation scale (as used in DWP's Households Below Average Income publication), the analysis here is based on the Before Housing Costs McClements equivalisation scale.</p>
			<p>All 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 equivalised net 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. These factors are shown in the table 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 equivalised net income figure for this household.</p>
			<p>Equivalisation factors:</p> <p><i>Cohabiting head of household 0.61</i></p> <p><i>Partner/spouse 0.39</i></p> <p><i>Other 2nd adult 0.46</i></p> <p><i>Third adult 0.42</i></p> <p><i>Subsequent adults 0.36</i></p> <p><i>Child aged:</i></p> <ul style="list-style-type: none"> • 16-18 0.36 • 13-15 0.27 • 11-12 0.25 • 8-10 0.23 • 5-7 0.21 • 2-4 0.18 • Under 2 0.09
			<p>For example, a household with a combined net income of £25,000 containing a couple and two children aged 11 and 7 years old will have an equivalised net income of around £17,100. This is calculated as follows:</p> <p>Factor: $0.61 + 0.39 + 0.25 + 0.21 = 1.46$</p> <p>Equivalised net income: $£25,000 / 1.46 = £17,123$</p>

Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
Spending on each of the main functions of government, and on Total Managed Expenditure		HM Treasury – Spending Review 2010 Economic estimates	These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics. These are estimated projections of spending in 2010-11. The classifications used for these projections are consistent with the outturn statistics published by HM Treasury in the public expenditure outturns National Statistics release, Feb 2009, available at: http://www.hm-treasury.gov.uk/national_statistics.htm

Paragraph B.8 – B.15: Distributional analysis methodology

Methodology for distributional analysis	See Annex B for detailed explanation of methodology for distributional analysis. Distributional analysis has been estimated using HM Treasury's distributional analysis model. This model uses data from provided by Departments informed by external sources. The model uses a static income and population distribution (based on 2010-11 data). Nominal values are used to calculate spend, deflated to 2010-11 prices. Analysis was performed on English households only.
'The equalisation process'	See section 'Definitions or data in text, table of charts – Equalisation methodology'
Further details of distribution of public spending over the Spending Review 2010 period	Departmental spending over the Spending Review period was modelled to estimate distributional effects. This distributional analysis was informed by Departmental data, HM Treasury analysis and external sources, as detailed below. Individual local authorities make spending decisions in line with their local priorities. The Spending Review sets the overall funding for Local Government DEL. In Annex B, Local Government covers an analysis of adult social care and local cultural services delivered by Local Government. Since social care may fall under health care provision it is sensible to consider social care impacts alongside health. This analysis takes into consideration the additional funds allocated to social care in the Spending Review; that said final decisions regarding social care budgets will be for Local Government. Services delivered by Local Government that are closely aligned to public goods (e.g. waste services) have not been included. Schools funding is within the Department for Education analysis. In June the Government announced £6 billion of efficiency savings. Those areas it has been possible to model have been included in the baseline to show the combined impact of the consolidation. This excludes

Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
			<p>the devolved administrations, capital, public goods and central Government administration.</p> <p>The analysis does not include expenditure by the Devolved Administrations because decisions on the allocation of the Devolved Block Budgets are matters for the Devolved Administrations.</p> <p>These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.</p>
Department for Business, Innovation and Skills		Apprenticeship Pay (Fong, B., Phelps, A.)	<p>2007 survey of earnings by sector, published by Department for Innovation, Universities and Skills (now a part of the Department for Business, Innovations and Skills). Available at: http://www.bis.gov.uk/assets/biscore/corporate/migrate/dD/publications/D/DIUS_RR_08_05</p>
		Adult Learners Responsive Learners (2010)	<p>Data taken from Prior Qualifications Survey (PQS) of Adult Learners Responsive Learners (2010). An explanation of the PQS is available at: http://www.thedataservice.org.uk/NR/rdonlyres/9B41EF2C-4270-4C8B-8318-E0D0E76A6556/0/FirstnessRatesforSFRVersion2.pdf</p>
		Train to Gain (2010)	<p>Data taken from Prior Qualifications Survey (PQS) of Train to Gain (2010). An explanation of the PQS is available at: http://www.thedataservice.org.uk/NR/rdonlyres/9B41EF2C-4270-4C8B-8318-E0D0E76A6556/0/FirstnessRatesforSFRVersion2.pdf</p>
		Higher Education Funding Council for England (HEFCE)	<p>Information on Higher Education take-up. Available at: http://www.hefce.ac.uk/pubs/hefce/2010/10_13/10_13.pdf</p>
Department for Communities and Local Government		CLG P1E Homelessness returns	<p>Updated quarterly; the latest data in the series is available at: http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/homelessnessstatistics/publicationshomelessness/</p>
		Households Below Average Income – 1994-95 - 2008-09	<p>Available at: http://statistics.dwp.gov.uk/asd/hbai/hbai_2009/pdf_files/full_hbai10.pdf</p>

Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
		Homeless Households accepted by Local Authorities - quarterly	Updated quarterly; the latest data in the series is available at: http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/homelessnessstatistics/livetables/
Department for Culture, Media and Sport		Taking Part Survey – 2009-10	Available at: http://www.culture.gov.uk/images/research/TakingPart_AdultChild2009-10_StatisticalRelease.pdf
Department of Energy and Climate Change		English Housing Survey – 2008-09	Available at: http://www.communities.gov.uk/documents/statistics/pdf/1479789.pdf
Department for Work and Pensions		Households Below Average Income – 1994-95 - 2008-09	Available at: http://statistics.dwp.gov.uk/asd/hbai/hbai_2009/pdf_files/full_hbai10.pdf
Department for Education		Schools, Pupils and their Characteristics – Jan 2010	Providing all data for schools. Available at: http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000925/SFR09-2010.pdf
		Participation in Education, Training and Employment by 16-18 Year Olds in England – June 2009	Available at: http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000938/sfr18-2010v2.pdf
		Longitudinal Study of Young People in England (Wave 5) and Youth Cohort Study (Cohort 13, Sweep 2) – 2008	Providing data for Education Maintenance Allowance (EMA). Available at: http://www.dcsf.gov.uk/rsgateway/DB/SBU/b000850/Bull01_2009textvfinal.pdf

Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
Department of Health	Non-journal article	ONS; The Effects of Taxes and Benefits on Household Income (Barnard, A. – 2009)	Article from the Office for National Statistics. Available at: http://www.statistics.gov.uk/articles/nojournal/Taxes_Benefits_0809.pdf
Local Government		Caresim model Economic estimates Local Government Financial Statistics England – 2008-09	HM Treasury/Department of Health estimates informed by analyses from the Caresim model developed by Ruth Hancock, Professor of the Economics of Health and Welfare and Head of the Health Economics Group at the University of East Anglia. Available at: http://www.communities.gov.uk/documents/statistics/pdf/1240022.pdf
		Taking Part Survey – 2009-10	Available at: http://www.culture.gov.uk/images/research/TakingPart_AdultChild2009-10_StatisticalRelease.pdf
Department for Transport		National Travel Survey – 2009	Available at: http://www.dft.gov.uk/pgr/statistics/datatablespublications/nts/technical/nts2009technical.pdf

Paragraph B.16: Consumption of public services across income quintiles

‘the consumption of services is skewed towards lower income households’

Income quintiles: See section ‘Definitions or data in text, table of charts – Income quintile/decile information, size of average household’.

Net income: See section ‘Definitions or data in text, table of charts – Income quintile/decile information, size of average household’

Consumption of public services by quintile calculated using HM Treasury’s distributional analysis model. See section ‘Distributional analysis methodology - Further details of distribution of public spending over the Spending Review 2010 period’

These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
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Chart B.1: Household consumption of benefits in kind by net equivalised income quintile (£ per week 2010-11)

Consumption of public services by income quintiles (£s)

Income quintiles: See section 'Definitions or data in text, table of charts – Income quintile/decile information, size of average household'.

Consumption of public services by quintile calculated using HM Treasury's distributional analysis model. See section 'Distributional analysis methodology - Further details of distribution of public spending over the Spending Review 2010 period'.

These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Table B.1: Weighted average annual net equivalised income and benefits in kind by quintile

Weighted average net income and benefits in kind by quintile

Income quintiles: See section 'Definitions or data in text, table of charts – Income quintile/decile information, size of average household'.

Net income information: See section 'Definitions or data in text, table of charts – Income quintile/decile information, size of average household'.

Consumption of public services by quintile calculated using HM Treasury's distributional analysis model. See section 'Distributional analysis methodology - Further details of distribution of public spending over the Spending Review 2010 period'.

These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Chart B.2: Household consumption of benefits in kind by net equivalised income quintile in 2010-11 and 2014-15 (£ per week 2010-11 prices)

Consumption of public services in 2010/11 and 2014/15 distributed by income quintile

Income quintiles: See section 'Definitions or data in text, table of charts – Income quintile/decile information, size of average household'.

Consumption of public services by quintile calculated using HM Treasury's distributional analysis model.

Distribution of public services by department: See section 'Distributional analysis methodology - Further details of distribution of public spending over the Spending Review 2010 period'.

Unmodelled spend: Total DEL figures from Spending Review 2010, calculated using HM Treasury's

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			distributional analysis model.
			These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Table B.2: Table of absolute weekly changes in household benefits in kind by net equivalised income quintile

Absolute weekly change in benefits in kind	Income quintiles: See section 'Definitions or data in text, table of charts – Income quintile/decile information, size of average household'.
	Change in consumption of public services by quintile calculated using HM Treasury's distributional analysis model. See section 'Distributional analysis methodology - Further details of distribution of public spending over the Spending Review 2010 period'.
	These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Paragraph B.19: Results based on the policy changes described in this Spending Review

Changes in consumption of public services as a consequence of Spending Review 2010	Income quintiles: See section 'Definitions or data in text, table of charts – Income quintile/decile information, size of average household'.
	Consumption of public services by quintile calculated using HM Treasury's distributional analysis model. See section 'Distributional analysis methodology - Further details of distribution of public spending over the Spending Review 2010 period'.
	These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Chart B.3: Changes in benefits in kind as a per cent of 2010-11 household consumption of benefits in kind

Change in benefits in kind as a percentage of 2010-11 consumption of public services by income quintiles	Income quintiles: See section 'Definitions or data in text, table of charts – Income quintile/decile information, size of average household'.
	Consumption of public services by quintile calculated using HM Treasury's distributional analysis model. See section 'Distributional analysis methodology - Further details of distribution of public spending over the Spending Review 2010 period'.

Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
			These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Paragraph B.29: List of measures that can be modelled

‘This section sets out the impact on individuals of the benefit and tax credit changes announced in this Spending Review, along with the cumulative impact of these changes and Budget measures’

Methodology: See section ‘Definitions or data in text, table of charts - Income quintile and decile analysis of tax, tax credit and benefit changes.’

Not all measures can be reliably modelled due to data constraints. The following measures have been included in this analysis:

Personal tax:

- £1,000 cash increase to the Personal Allowance in 2011-12;
- £2,500 reduction in the basic rate limit and Upper Earnings Limit and Upper Profits Limit in 2011-12;
- Freeze higher rate threshold in 2012-13, keeping upper earnings limit and upper profits limit aligned with higher rate threshold;
- Increase Primary Threshold in 2011-12 by £21 above alignment with where the personal allowance would have been under plans inherited by this Government;
- Increase all National Insurance rates by 1 percentage point from 2011-12.

Tax credits:

- Increase the child element of the Child Tax Credit by £180 above indexation in 2011-12 and £110 above indexation in 2012-13;
- Increase the first and second withdrawal rates to 41 per cent from April 2011;
- Remove the baby element from April 2011;
- Start tapering the family element of Child Tax Credit immediately after the child element is withdrawn from April 2012;
- Remove the 50 plus element of the Working Tax Credit from April 2012;
- Increase the Working Tax Credit working hours requirement for couples to 24 hours in 2012-13;
- Reduce the proportion of costs covered by the childcare element of the Working Tax Credit from 80 per cent to 70 per cent from April 2011;
- Freeze the basic and 30 hour elements of the Working Tax Credit at 2010-11 rates from 2011-12 until 2013-14.

Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
			<p>Benefits:</p> <ul style="list-style-type: none"> Freeze Child Benefit at 2010-11 rates from 2011-12 until 2013-14; Remove Child Benefit from families where there is at least one adult with an income above the higher rate threshold from January 2013; Increase minimum guarantee for Pension Credit by cash increase in Basic State Pension for 2011-12; Freeze maximum award of Savings Credit from April 2011. <p>Uprating:</p> <ul style="list-style-type: none"> Change uprating of benefits and tax credits to CPI from April 2011; Change uprating of Basic State Pension to higher of CPI, earnings or 2.5 per cent from April 2011 except for 2011-12 only uprate by RPI if higher than CPI. <p>Indirect taxes:</p> <ul style="list-style-type: none"> Increase the standard rate VAT to 20 per cent in January 2011; Reverse cider duty increase at March 2010 Budget in June 2010; <p>These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.</p>

Chart B.4: Impact of Spending Review and Budget measures (including pre-announcements) in cash terms (£ per year) by income distribution (2012-13)

Impact of Spending Review and Budget measures (including pre-announcements) in cash terms (£ per year) by income distribution (2012-13)

Income deciles: See section 'Definitions or data in text, table of charts– Income quintile/decile information, size of average household'.

Estimates are derived using HM Treasury's tax and benefit micro-simulation model as described in 'Definitions or data in text, table of charts - Income quintile and decile analysis of tax, tax credit and benefit changes'.

These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Chart B.5: Impact of Spending Review and Budget measures (including pre-announcements) as a per cent of net income by income distribution (2012-13)

Impact of Spending Review and Budget measures (including pre-announcements) as

Income deciles: See section 'Definitions or data in text, table of charts– Income quintile/decile information, size of average household'.

Estimates are derived using HM Treasury's tax and

Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
a per cent of net income by income distribution (2012-13)			benefit micro-simulation model as described in 'Definitions or data in text, table of charts - Income quintile and decile analysis of tax, tax credit and benefit changes'. These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.

Paragraph B.42: the impact of tax, tax credit and benefit changes

'the Office for National Statistics and others have suggested that expenditure deciles may provide a more relevant distributional split of households'	N/A	ONS: The Effects of Taxes and Benefits on Household Income, 2008/09 (June 2010)	Available at: http://www.statistics.gov.uk/pdfdir/taxbhi0610.pdf
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Chart B.6: Impact of the consolidation on households as a per cent of 2010-11 net income (including households' benefits in kind)

Impact of the consolidation on households as a per cent of net income (including households' benefits in kind)		Income quintiles: See section 'Definitions or data in text, table of charts– Income quintile/decile information, size of average household'. Tax, tax credit and benefits changes are derived using HM Treasury's tax and benefit micro-simulation model as described in 'Definitions or data in text, table of charts - Income quintile and decile analysis of tax, tax credit and benefit changes'. See section 'list of measures that can be modelled'. Additionally, for this 2014-15 analysis, the following measures are also included: <ul style="list-style-type: none"> • Introducing a cap on total welfare payments each benefit unit can receive from 2013-14 • Limiting Pensions Tax Relief to £50,000 from April 2011 • Introducing objective medical assessments for all DLA claimants from 2013-14 • Time-limiting contributory ESA to one year for those in the Work Related Activity Group from 2012-13 The final three of these measures are modelled by apportioning to quintiles the Exchequer savings from the measures, according to information on the numbers of people affected in each quintile. Distribution of public services by department: See section 'Distributional analysis methodology - Further
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Data in tables, charts, text or additional notes	ONS source code (if applicable)	Data source	Further reference information
			<p>details of distribution of public spending over the Spending Review 2010 period’.</p> <p>These figures are calculated as economic estimates, including the effects of assumptions and results from economic analyses that have a material impact, and are therefore outside the domain of official statistics.</p>

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