

## The effects of taxes and benefits on household income



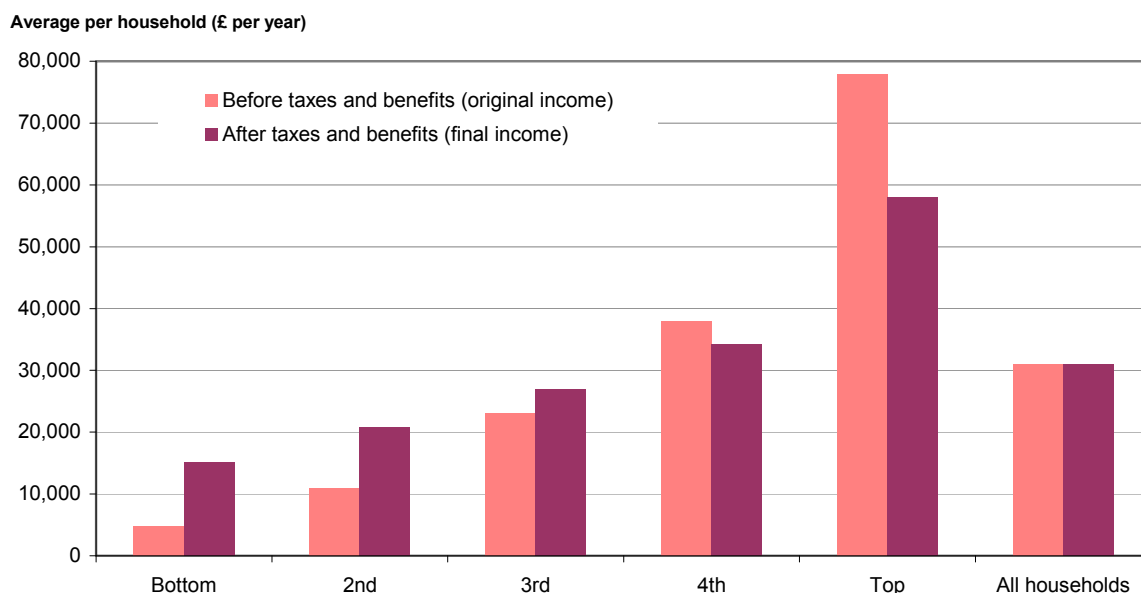
Date: 19 May 2011

Coverage: UK Theme: The Economy

### For the 2009/10 financial year:

- Before taxes and benefits, the richest fifth of households received income that was 16 times greater than the poorest fifth, compared with 17 times greater in 2008/09
- After all taxes and benefits are taken into account, the ratio between the top and the bottom fifth households was four-to-one, unchanged on the previous year
- Indirect taxes, such as VAT, take a higher proportion of income from lower income households, and therefore increase income inequality
- After taxes and benefits, income inequality was lower for retired than for non-retired households
- There was a fall in inequality between 2008/09 and 2009/10, as measured by the Gini coefficient for disposable income
- The fall in inequality was driven mainly by retired households.

### The effects of taxes and benefits on household income by quintile groups<sup>1</sup>, 2009/10



**Note:**

<sup>1</sup> Households are ranked throughout by their equivalised disposable incomes, using the modified-OECD scale.

Source: Office for National Statistics

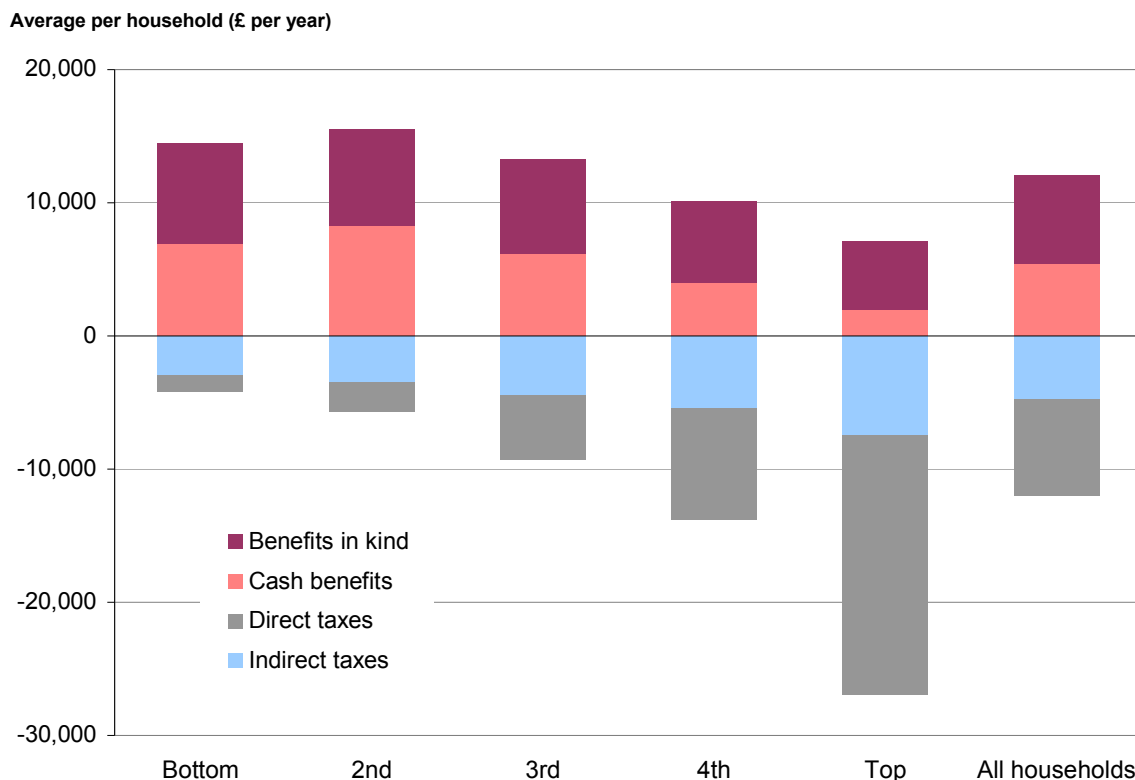
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## Summary of results for all households

The overall impact of taxes and benefits are that they lead to income being shared more equally between households. In 2009/10, before taxes and benefits, the richest fifth (those in the top income quintile group) had an average original income of £77,900 per year, compared with £4,800 for the poorest fifth – a ratio of 16 to 1. In 2008/09 the corresponding ratio was 17 to 1, indicating that inequality of original income fell slightly between the two years. Original income includes earnings, occupational pensions and investments.

In contrast to original income, the amount received from cash benefits tends to be higher for poorer households than for richer households. The largest cash benefits were received by households in the second quintile group, £8,300 per year, compared with £6,900 for households in the bottom group. This is largely because more retired households are located in the second quintile group, compared with the bottom group, and in this analysis the state pension is classified as a cash benefit. After cash benefits were taken into account, the richest fifth had income that was seven times that of the poorest fifth (gross incomes of £79,900 per year compared with £11,700, respectively), a proportion that was unchanged on the previous year. Cash benefits therefore reduced the inequality of income.

## Summary of the effects of taxes and benefits by quintile groups, ALL households<sup>1</sup>, 2009/10



Source: Office for National Statistics

**Note:**

<sup>1</sup> Households are ranked by their equivalised disposable incomes, using the modified-OECD scale.

A video explaining this story is available on the **ONS You Tube channel** at: <http://www.youtube.com/user/onsstats>

On average households paid £7,200 per year in direct taxes, 20 per cent of their gross income. Richer households pay both higher amounts of direct tax and higher proportions of their income in direct tax (income tax, National Insurance, and council tax and Northern Ireland rates). As a result, direct taxes also reduce inequality of income. The richest fifth of households paid on average £19,500 per year in direct taxes, corresponding to 24 per cent of their gross income. In contrast, the direct tax bill for the poorest fifth was around £1,200 per year, or 10 per cent of their gross household income. These proportions are broadly unchanged on those for 2008/09. The richest fifth of households had disposable incomes that were six times that of the poorest fifth (£60,400 per year and £10,500, respectively), a ratio that was the same in 2008/09.

The amount of indirect tax (such as VAT, and duties on alcohol and fuel) each household pays is determined by their expenditure rather than their income. The richest fifth of households paid two and a half times as much indirect tax as the poorest fifth (£7,400 and £3,000 per year, respectively). This simply reflects higher expenditure by higher income households. In 2009/10, the bottom fifth of households paid 25 per cent of their gross income in indirect taxes, compared with 9 per cent for the richest fifth. The proportions were almost unchanged on a year previous, when they were 25 per cent and 10 per cent, respectively. Therefore, indirect taxes take a higher proportion of income from those with lower incomes, and act to increase the inequality of income. Further ONS analysis of the effect of indirect taxes on household income was published on 14 April 2011 and is available at <http://www.statistics.gov.uk/articles/nojournal/indirect-taxes-1404.pdf>.

When expressed as a percentage of expenditure, the proportion paid in indirect tax declines less sharply as income rises. The bottom fifth of households paid 20 per cent of their expenditure in indirect taxes compared with 15 per cent for the top fifth, almost unchanged on those for 2008/09, when they were 19 per cent and 15 per cent, respectively. After indirect taxes the richest fifth had post-tax household incomes that were seven times those of the poorest fifth (£52,900 compared with £7,600 per year, respectively) – in 2008/09 the ratio was also seven.

### Taxes as a percentage of income and expenditure, ALL households, 2009/10

	Quintile groups of ALL households <sup>1</sup>					All households
	Bottom	2nd	3rd	4th	Top	
<b>(a) Percentages of gross income</b>						
Direct taxes	10.2	11.5	16.6	20.1	24.4	19.9
Indirect taxes	25.3	18.1	15.3	12.9	9.3	13.0
<i>All taxes</i>	35.5	29.6	31.9	32.9	33.7	32.9
<b>(b) Percentages of disposable income</b>						
Indirect taxes	28.1	20.5	18.3	16.1	12.3	16.3
<b>(c) Percentages of expenditure<sup>2</sup></b>						
Indirect taxes	19.6	19.6	18.6	17.4	15.2	17.4

**Notes:**

1 Households are ranked by equivalised disposable income, using the modified-OECD scale.

2 Calculated to be consistent with disposable income. See *Further Analysis and Methodology* article for the definition of expenditure.

Source: Office for National Statistics

These statistics also consider the effect on household income of benefits received in kind. Benefits in kind are goods and services provided by the Government to households that are either free at the time of use or at subsidised prices. These goods and services can be assigned a monetary value based on the cost to the Government which are allocated as a benefit to individual households. The poorest fifth of households received the equivalent of around £7,600 per year from all benefits in kind, compared with £5,100 received by the top fifth. The ratio of the richest fifth's final income to the poorest fifths is four-to-one (£58,100 per year and £15,100, respectively). Therefore benefits in kind also reduce the inequality of income. Due to methodological changes to the calculation of the benefit from the National Health Service, estimates of the total benefit in kind are not comparable with those in previous ONS analyses. Further work to derive a consistent series over time, based on the current methodology, is planned for autumn 2011.

### Income, taxes and benefits, by quintile groups, ALL households, 2009/10

	Quintile groups of ALL households <sup>1</sup>					All households	Ratio Top/Bottom quintile
	Bottom	2nd	3rd	4th	Top		
<b>Income, taxes and benefits per household (£ per year)</b>							
Original income	4 847	10 853	23 088	37 937	77 896	30 924	16
<i>plus</i> cash benefits	6 883	8 280	6 139	3 949	1 992	5 448	0.3
Gross income	11 730	19 133	29 227	41 886	79 889	36 373	7
<i>less</i> direct taxes	1 195	2 200	4 850	8 403	19 500	7 230	16
Disposable income	10 535	16 933	24 377	33 483	60 388	29 143	6
<i>less</i> indirect taxes	2 965	3 466	4 459	5 386	7 441	4 743	3
Post-tax income	7 570	13 467	19 918	28 097	52 947	24 400	7
<i>plus</i> benefits in kind	7 555	7 252	7 088	6 162	5 123	6 636	0.7
Final income	15 125	20 719	27 006	34 259	58 070	31 036	4
<b>Household type (percentages)</b>							
Retired	35	46	29	17	7	27	
Non-retired	65	54	71	83	93	73	
All household types	100	100	100	100	100	100	

**Notes:**

1 Households are ranked by equivalised disposable income, using the modified-OECD scale.

Source: Office for National Statistics

### Summary of results for retired households

Retired households are those where the income of retired household members accounts for the majority of the total household gross income (see the background note for the definition of a retired person). Retired households have different income and expenditure patterns to their non-retired counterparts.

Retired households were much more likely to be at the bottom of the income distribution than at the top of the distribution. Whereas retired households made up 35 and 46 per cent of the bottom and second quintile groups, respectively, they only made up 7 per cent of the top group.

Among retired households, there is a higher degree of income inequality before taxes and benefits than for non-retired households. The richest fifth of retired households received 54 per cent of total original income, compared with 51 per cent for all households. Also, the Gini coefficient for original income was 61 per cent for retired households, compared with 52 per cent for all households.

The effect of taxes and benefits is that disposable income inequality is much lower for retired households than for non-retired households. Cash benefits play by far the largest part in bringing about this reduction, due especially to the state retirement pension. Retired households' Gini coefficient for disposable income was 24 per cent compared with 34 per cent for non-retired households. The corresponding coefficients for 2008/09 were 26 per cent, and 34 per cent, respectively.

On average, the poorest fifth of retired households received £7,400 per year from cash benefits, while those in the other quintile groups received between £9,500 and £11,100 per year. Cash benefits represent just over a half (52 per cent) of retired households' total gross income on average, a proportion which is higher for poorer households and lower for richer households (78 per cent for the poorest fifth of retired households and 30 per cent for the richest fifth). Of the total retired households' cash benefits, almost three-quarters (74 per cent) were due to the retirement pension, on average.

Retired households derive significant benefits from the National Health Service (NHS). The benefit in kind from the NHS is spread fairly evenly between retired households and in 2009/10 it was worth an average of £5,400 per year, per household. The benefit derived from the NHS makes up on average 95 per cent of the total benefit in kind received by retired households.

### Summary of the effects of taxes and benefits, RETIRED households, 2009/10

	Quintile groups of RETIRED households <sup>1</sup>					All retired households	Ratio Top/Bottom quintile
	Bottom	2nd	3rd	4th	Top		
<b>Income, taxes and benefits per household (£ per year)</b>							
Original income	2 036	3 740	4 990	9 795	24 582	9 029	12
<i>plus</i> total cash benefits	7 409	9 530	10 532	11 092	10 464	9 806	1
Gross income	9 445	13 270	15 522	20 887	35 046	18 834	4
<i>less</i> Direct taxes	950	1 103	1 277	2 284	5 180	2 159	5
Disposable income	8 495	12 167	14 246	18 603	29 866	16 675	4
<i>less</i> Indirect taxes	2 225	2 541	2 635	3 146	4 279	2 966	2
Post-tax income	6 270	9 626	11 610	15 456	25 586	13 710	4
<i>plus</i> National health service	5 407	5 489	5 254	5 584	5 497	5 446	
Housing subsidy	8	32	32	30	11	23	
Other benefits in kind	188	234	171	507	257	271	
Final income	11 874	15 381	17 067	21 576	31 351	19 450	3
Cash benefits as a percentage of gross income	78	72	68	53	30	52	
Retirement pension as a percentage of cash benefits	82	73	70	71	79	74	

**Note:**

<sup>1</sup> Households are ranked by equivalised disposable income, using the modified-OECD scale.

Source: Office for National Statistics

Overall, retired households are major beneficiaries from redistribution through the tax and benefit system. Before taxes and benefits, the richest fifth of retired households had an average original income of £24,600 per year, 12 times that of the poorest fifth (£2,000 per year). The richest fifth of retired households had an average disposable income of £29,900 per year, four times that of the poorest fifth (£8,500 per year). This ratio was unchanged on that for 2008/09; however, this masks

much greater growth in disposable incomes for the poorest fifth, relative to the richest fifth of retired households, over the period. The majority of the increase in disposable incomes for the poorest fifth over the period came from growth in cash benefits. After taxes and benefits the ratio between the top and bottom fifths was reduced to three-to-one (final incomes of £31,400 and £11,900 per year, respectively), unchanged on the ratio for the year previous.

## Non-retired households

Taxes and benefits lead to income being shared more equally between non-retired households, but the effect is smaller than for retired households. Before taxes and benefits, there is less inequality of non-retired households' income than for retired households. However, after the process of redistribution, inequality of post-tax income (as measured, for example, by the Gini coefficient) is greater than that for retired households.

In 2009/10, the average original income for non-retired households was £38,900 per year. The original income of non-retired households showed a relatively strong relationship to the number of economically active people they contained. On average, households in each of the top three quintile groups contained almost twice as many economically active people as those in the lowest group.

### Summary of the effects of taxes and benefits by quintile groups, NON-RETIRED households, 2009/10

	Quintile groups of ALL households <sup>1</sup>					All households	Ratio Top/Bottom quintile
	Bottom	2nd	3rd	4th	Top		
<b>Income, taxes and benefits per household (£ per year)</b>							
Original income	6 772	20 167	33 072	47 346	87 273	38 926	13
<i>plus</i> cash benefits	6 518	5 560	3 505	2 204	1 494	3 856	0.2
Gross income	13 290	25 728	36 576	49 550	88 767	42 782	7
<i>less</i> direct taxes	1 370	3 955	7 121	10 848	22 121	9 083	16
Disposable income	11 920	21 773	29 455	38 702	66 647	33 699	6
<i>less</i> indirect taxes	3 318	4 469	5 307	5 998	7 874	5 393	2
Post-tax income	8 602	17 303	24 149	32 705	58 773	28 306	7
<i>plus</i> benefits in kind	8 611	8 221	7 020	5 831	5 133	6 963	0.6
Final income	17 213	25 524	31 169	38 536	63 906	35 270	4
<b>Number of individuals per household</b>							
<i>Children</i> <sup>2</sup>	1.0	0.9	0.6	0.5	0.4	0.7	
<i>Adults</i>	1.7	1.9	2.1	2.1	2.0	2.0	
<i>Men</i>	0.8	0.9	1.0	1.1	1.1	1.0	
<i>Women</i>	0.9	1.0	1.0	1.0	0.9	1.0	
People	2.7	2.8	2.7	2.5	2.4	2.6	
People in full-time education	1.0	0.9	0.6	0.5	0.4	0.7	
Economically active people	1.0	1.5	1.8	1.9	1.9	1.6	
Retired people	0.0	0.1	0.1	0.1	0.1	0.1	

**Notes:**

1 Households are ranked by equivalised disposable income, using the modified-OECD scale.

2 Children are defined as people aged under 16 or aged between 16 and 18, unmarried and receiving non-advanced further education.

Source: Office for National Statistics

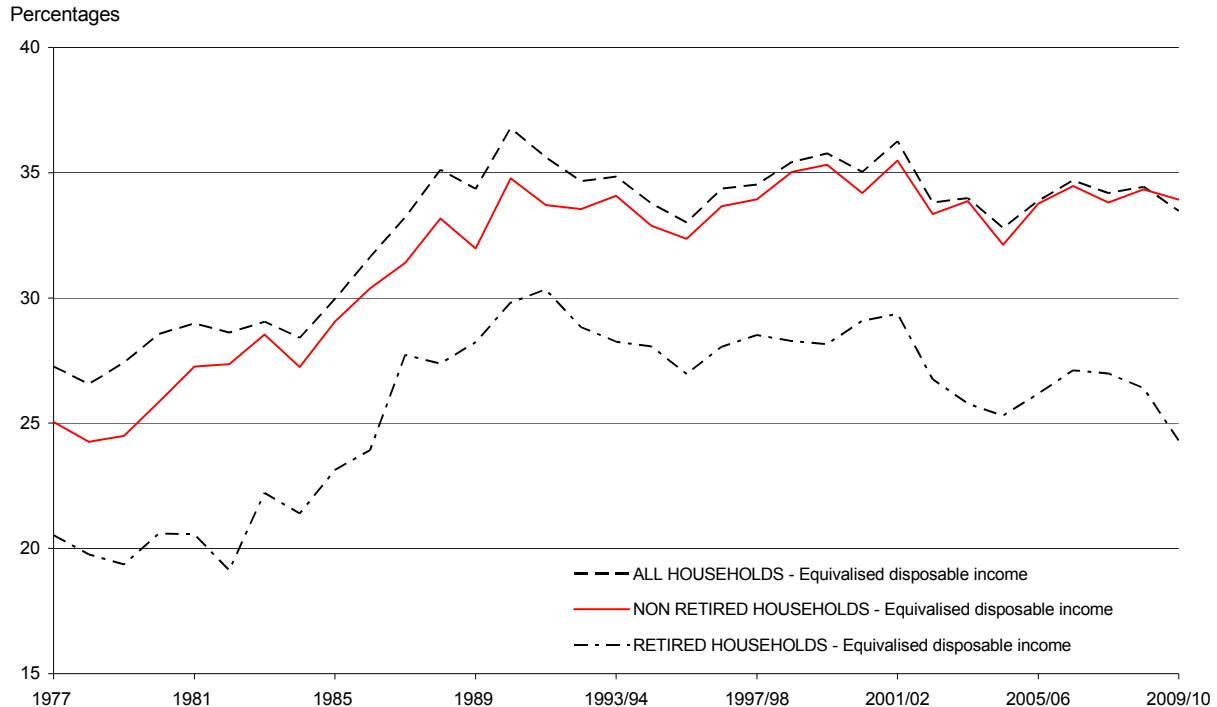
Cash benefits provided 49 per cent of gross income for households in the bottom quintile group, falling to just 2 per cent for households in the top quintile. Their payment results in a significant reduction in income inequality. The patterns for direct and indirect taxes are similar to those described for all households.

The largest two categories of benefits in kind for which a value is assigned are health and education services and, in total, six categories are assigned values. The poorest fifth of non-retired households received the highest benefit from benefits in kind, on average £8,600 per year. This is mainly due to the concentration of children in this part of the distribution.

### Trends in income inequality

Inequality of income increased in the late 1980s and late 1990s, and on average has remained at broadly the same level since. Smaller changes in the level of inequality are observed in the period from 1990s to date. The Gini coefficient for disposable income in 2009/10 was 33 per cent, a fall of one percentage point on its 2008/09 value, therefore indicating a fall in inequality of income. The fall in inequality was driven mainly by retired households, for whom inequality fell by two percentage points in the latest period, and by three percentage points between 2007/08 and 2009/10. Further ONS analysis of the effects that taxes and benefits have had on inequality since the 1980s is planned for publication in June 2011.

### Gini coefficients<sup>1</sup>, 1977 to 2009/10



Source: Office for National Statistics

**Note:**

1 Households are ranked throughout by their equivalised disposable incomes, using the modified-OECD scale.

## Sampling variability

As the LCF is a sample survey, data from it will differ in varying degrees from those of all households in the UK. The degree of difference will depend on how widely particular categories of income and expenditure vary between households. This 'sampling error' is smallest in relation to large groups of households and measures that do not vary greatly between households. A broad numerical measure of the amount of variability is provided by the quantity known as the standard error. Estimates of the standard error are provided in the attached table.

## 95 per cent confidence intervals for gross and disposable income of households<sup>1</sup>, and as a percentage of the published estimate, 2009/10

Average per household (£ per year)		Gross income				Disposable income			
		Lower bound	Published estimate	Upper bound	% ±	Lower bound	Published estimate	Upper bound	% ±
All households	Bottom decile group	8,838	9,275	9,712	4.7	7,737	8,162	8,587	5.2
	Mean	35,493	36,373	37,252	2.4	28,473	29,143	29,813	2.3
	Top decile group	97,208	101,808	106,408	4.5	72,356	76,089	79,822	4.9
Retired households	Bottom decile group	7,552	7,901	8,250	4.4	6,697	7,022	7,347	4.6
	Mean	18,185	18,834	19,483	3.4	16,157	16,675	17,193	3.1
	Top decile group	40,053	44,135	48,217	9.2	33,963	36,963	39,963	8.1
Non-retired households	Bottom decile group	9,554	10,187	10,820	6.2	8,366	8,973	9,580	6.8
	Mean	41,604	42,782	43,960	2.8	32,808	33,699	34,590	2.6
	Top decile group	105,341	111,355	117,369	5.4	77,675	82,654	87,633	6.0

**Note:**

<sup>1</sup> Ranked by equivalised disposable income, using the modified-OECD scale.

Source: Office for National Statistics

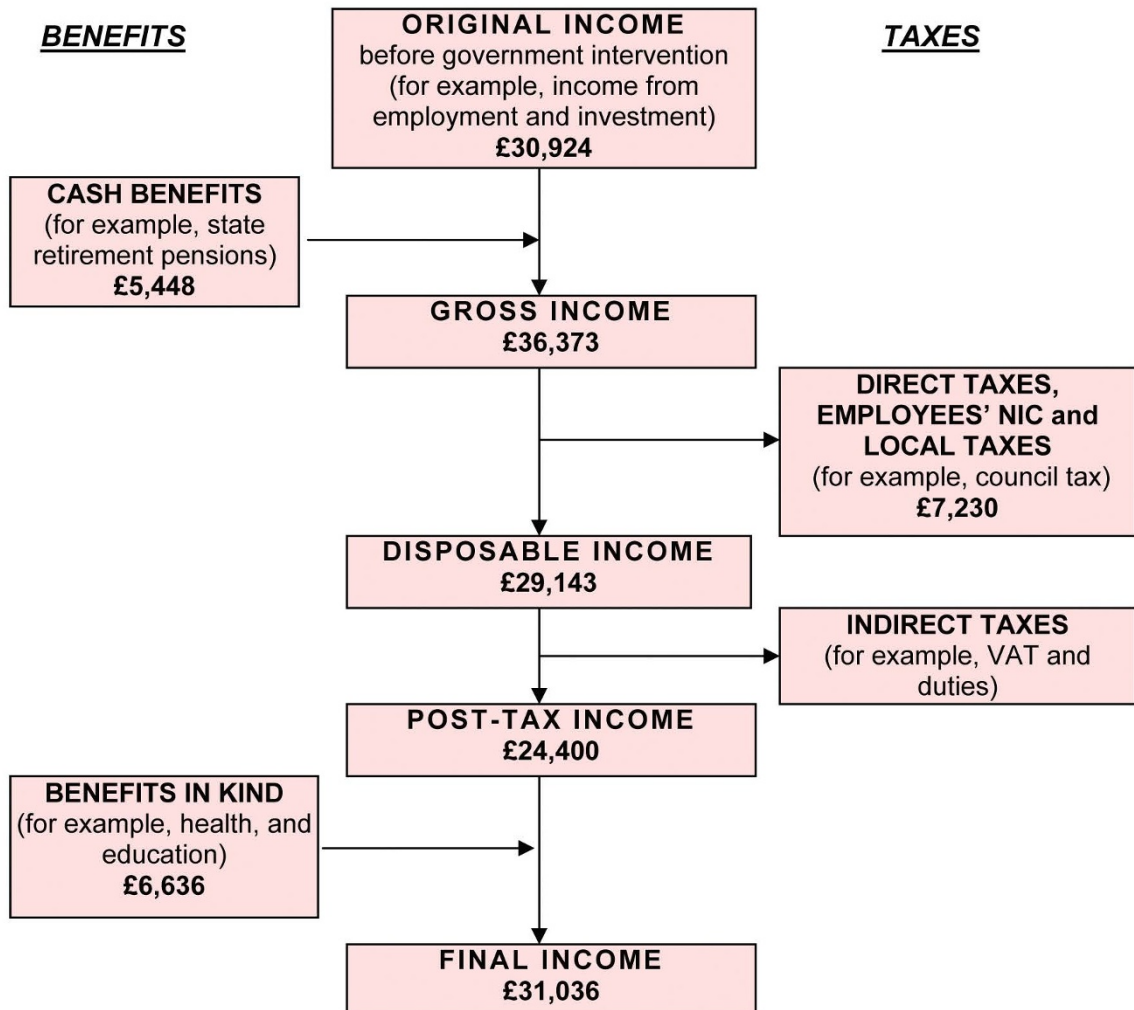
## Stages of redistribution

This analysis looks at how taxes and benefits affect the distribution of income and breaks this process into five stages:

- 1) Household members begin with income from employment, occupational pensions, investments and from other non-government sources. This is referred to as 'original income'
- 2) Households then receive income from cash benefits. Cash benefits, when added to original income, is referred to a 'gross income'
- 3) Households then pay direct taxes. Gross income minus direct taxes is referred to as 'disposable income'
- 4) Indirect taxes are then paid via expenditure, which when subtracted from disposable income is referred to as 'post-tax income'
- 5) Households finally receive a benefit from services (benefits in kind). Benefits in kind plus post-tax income is referred to as 'final income'.



Diagram A: Average household income, cash benefits and taxes, 2009/10



## Background Notes

1. Today's analysis, along with *The effects of taxes and benefits on household income, 2009/10: Further analysis and methodology* can be found on the Office for National Statistics website at: <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=10336>
2. This analysis has been undertaken each year since the 1960s. Where it is practical, the methodology used is similar to that used in previous years. However, there have been some changes in the underlying surveys and improvements made to the methodology. For this reason, one should be cautious about making direct comparisons with earlier years. Comparisons with previous years are also affected by sampling error (for more details see the technical paper). Time series are presented for inequality measures.
3. The most widely used summary measure of inequality in the distribution of household income is the Gini coefficient. The lower the value of the Gini coefficient, the more equally household income is distributed. More details on how the Gini coefficient is calculated are available at: [http://www.statistics.gov.uk/about/methodology\\_by\\_theme/gini/default.asp](http://www.statistics.gov.uk/about/methodology_by_theme/gini/default.asp)
4. This analysis uses several different measures of household income. Original income (before taxes and benefits) includes income from wages and salaries, self-employment, occupational pensions and investments. Gross income includes all original income plus cash benefits provided by the state. Disposable income is that which is available for consumption, and is equal to gross income less direct taxes. Post-tax income is calculated by estimating the payment of indirect taxes, and deducting these from disposable income. Final income is calculated as post-tax income plus benefits in kind received from the state.
5. A retired household is defined as one where the combined income of retired members amounts to at least half the total gross income of the household, where a retired person is defined as anyone who describes themselves as 'retired' or anyone over minimum National Insurance pension age describing themselves as 'unoccupied' or 'sick or injured but not intending to seek work'.
6. Income quintile groups are based on a ranking of households by equivalised disposable income. Equivalised incomes are standardized to account for the fact that households of differing size or composition will require different incomes to achieve the same standard of living. In this analysis the modified-OECD equalisation scale was used. This is the first year for which all analysis has used the modified scale – previously the McClements Scale was utilised. Please note that comparisons with previous year's data also used the modified-OECD equalisation scale. For more information please see: <http://www.statistics.gov.uk/cci/article.asp?ID=2349>
7. A Summary Quality Report for these statistics is available at: <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=10336>
8. Further analysis of these statistics is planned for 2011. This includes an investigation of taxes and benefits between 1980 and 2009/10, scheduled for publication on 16 June 2011. Work to derive a consistent series in benefits in kind over time will be undertaken during autumn 2011. Additionally, it is expected that a number of short articles using these data will be undertaken.

9. The Department for Work and Pensions (DWP) publishes analysis each year of the income distribution in their publication *Households Below Average Income (HBAI)*, based on data from the Family Resources Survey (FRS). The latest publication, including data for 2009/10, was released on 12 May 2011 and is available at:  
<http://research.dwp.gov.uk/asd/index.php?page=hbai> There are commonalities between HBAI and the estimates presented in this analysis. Where this is the case, the two publications are broadly consistent in the main messages and trends.
10. Details of the policy governing the release of new data are available from the Media Relations Office.
11. National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference.  
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**Next publication:**

2012

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