The effects of taxes and benefits on household income, 1997-98

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Main findings

- The income share of the bottom fifth of households is increased from 2 per cent of original income to 7 per cent of post-tax income by taxes and benefits.
- The average original income of the top fifth of households is 19 times the average of the bottom fifth. Taxes and benefits reduce this inequality so that the corresponding ratio for final income is four to one.
- Income inequality rose rapidly during the 1980s. There was a small reduction in inequality in the first half of the current decade but for the 1990s as a whole the pattern is one of little change.
- Cash benefits are an important source of income for low income households. They make up almost two thirds of gross income for the bottom fifth of households.
- Direct taxes take a higher proportion of income as income rises: the top fifth of non-retired households pay almost a quarter of gross income in direct tax compared to a tenth for the bottom fifth.
- When considered together, the burden of direct and indirect tax is broadly flat across income groups – the average non-retired household pays 37 per cent of gross income in tax.
- The types of household that tend to be net beneficiaries from taxes and benefits include one adult households with children, two adult households with three or more children and retired households.

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Summary

The analysis in this article looks at how taxes and benefits redistribute income between various groups of households, shows where different types of household and individuals are in the income distribution and examines the changing levels of income inequality over time.

Adults and children are not spread evenly throughout the income distribution. For example there are more children in households in the lower half of the distribution. Among adults, women appear fairly evenly across income groups while there are more men in households in the higher income groups. There are also distinct patterns by household type. Households containing one adult and at least one child are concentrated in the bottom quintile group while retired households, particularly those containing one woman, are over-represented in the bottom two quintiles.

The higher income groups are characterised by households with more economically active people than those lower down the income distribution. Two adult households with no children are also over-represented towards the top.

Government intervention, by means of taxes and benefits, alters the incomes of households and tends to reduce the differences between households. Before this intervention, the top fifth of households have an average of £48,000 from original income (that is from sources such as earnings, occupational pensions and investments). This is around 19 times as great as the figure of £2,500 for the bottom fifth. However after taxes and benefits the ratio is greatly reduced to four to one.

In general households in the top half of the distribution pay more in taxes than they receive in benefits while the reverse is true for those in the lower half. The types of households that tend to be net gainers include one adult households with children, two adult households with three or more children and retired households.

Cash benefits play the largest part in reducing inequality. These make up more than two thirds of the gross income of households in the bottom quintile group. This proportion is even higher for retired households in this group with the majority of cash benefits for these households coming from contributory benefits, particularly the state retirement pension.

Direct taxes, except for local taxes, are progressive – they take a larger proportion of income from those higher up the income distribution – therefore they also contribute to a reduction in inequality although not to the same extent as cash benefits. The proportion of gross income paid in direct tax by the top fifth of non-retired households is more than double that paid by those in the bottom fifth: 24 per cent compared with 11 per cent. Most retired households pay little income tax as, in general, their incomes do not greatly exceed their personal tax allowances. For local taxes the top quintile group pays the largest absolute amount. However when expressed as a proportion of gross income the burden is higher in the lower half of the distribution.

Indirect taxes have the opposite effect to direct taxes taking a higher proportion of income from those with lower incomes. This is partly due to the expenditure of some low income households being higher than their current incomes and some high income households channelling a relatively high proportion of their income into savings, investments and mortgage payments which do not attract indirect taxes. However the top fifth of households still pay more indirect tax in absolute terms than other households.

Taken together, the burden of direct and indirect taxes is broadly flat across the income distribution. The average non-retired household pays 37 per cent of gross income in taxes and there is little variation by income group.

Households also receive benefits in kind from services provided by government such as health and education. The amount received by households reflects their demographic composition and falls gradually as income increases indicating that these benefits lead to a reduction in inequality.

This article also looks at trends in income inequality between households over time. Inequality of disposable income was fairly stable in the first half of the 1980s. This was followed by a period where it increased rapidly reaching a peak in 1990. Inequality then fell slightly in the first half of the 1990s although figures for the latest two years, 1996-97 and 1997-98, indicate that this trend may not be continuing.

Concepts and sources

This study examines how taxes and benefits redistribute income. The analysis is based on households rather than individuals with each household receiving equal weight. It adds the value of government benefits to the private income of households and subtracts the value of taxes to look at different measures of household income.

Chart **1**
Stages of redistribution

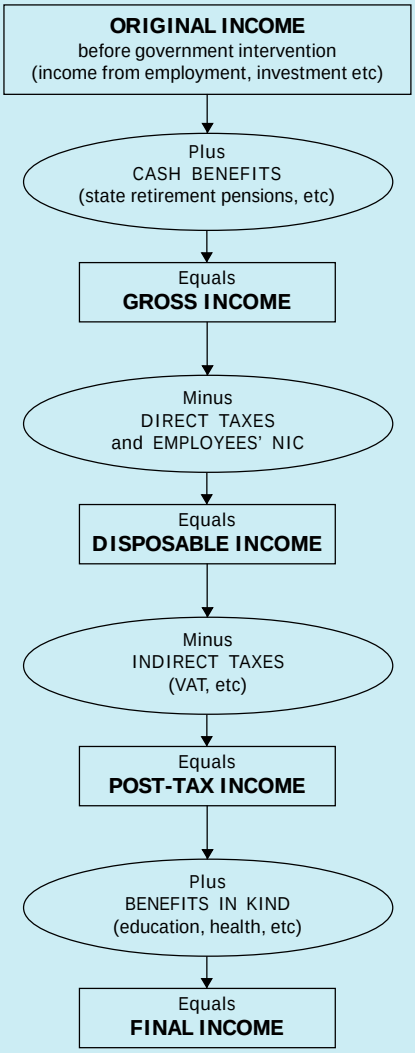


Chart 1 shows the stages of redistribution of income used in this analysis. Household members receive income from employment, occupational pensions, investments and other non-government sources – this is referred to as original income. The flow chart shows the various ways that government raises revenue from households through taxation and distributes benefits to them in cash and in kind.

The analysis only allocates those taxes and benefits that can reasonably be attributed to households. Therefore some government revenue and expenditure are not allocated such as revenue from corporation tax and expenditure on defence and public order. There are three main reasons for non-allocation. Some taxes and benefits fall on people who do not live in private households. In other cases there is no clear conceptual basis for allocation to particular households. Finally there may be a lack of data to enable allocation. In this study, some £197 billion of taxes and £176 billion of benefits have been allocated to households. This is equivalent to 63 per cent and 56 per cent respectively of general government expenditure which totalled over £315 billion in 1997 (Appendix 1, Table 1).

The estimated values of taxes and benefits reflect the study methodology. They are based on assumptions about which taxes and benefits should be covered and to whom they should apply. Where it is practical, the methodology used is similar to that used in previous years. However there have been some changes in the underlying survey and improvements in the methodology. For example changes from 1996-97 onwards include new questions for the self-employed and the use of data which are grossed up to the UK household population. Time series are presented for some measures which are relatively robust to these changes. These include the Gini coefficients and the shares of income in Appendix 2. Beyond these measures, the reader should not make direct comparisons with earlier studies.

The unit of analysis used in this study is the household. The households are ranked by their equivalised disposable income. Equivalisation takes into account the size and composition of households and adjusts their incomes to recognise differing demands on resources. For example a couple would need a higher income than a single person to achieve the same standard of living and so a single person's income of £6,100 is treated as equivalent to an income of £10,000 for a couple (see Appendix 3, paragraph 46). Households with the same equivalised income do not necessarily have the same standard of living where non-household size characteristics are different. For example households which own their homes outright would be in a better position than identical households with the same income which had to pay rent or mortgage payments. Also households which include disabled people may require additional resources to maintain the same standard of living as those without disabled people. Equivalisation does not adjust for these differences.

Equivalised income is used only to rank the households. Most monetary values shown in the article are not equivalised. Where equivalised amounts are given, they are shown in *italics*. Once the households have been ranked, the distribution is split into five (or ten) equally sized groups – that is quintile groups (or decile groups). The bottom and second quintiles are those with the lowest equivalised disposable incomes while the fourth and top quintiles have the highest.

The main data source for this analysis is the Family Expenditure Survey (FES) which covers about 6,500 households in the United Kingdom each year. It only covers private households – people living in hotels, lodging houses and in institutions such as old people's homes are excluded.

The survey results are grossed up so that the totals reflect the whole household population in terms of age, sex and region. Different grossing factors are applied to different types of household in order to correct for over or under-representation of these groups in the responding sample of the FES. Studies have indicated that the FES suffers from under-representation at the very top of the income distribution. This under-representation is not directly corrected by the grossing methodology and may lead to some under-estimation of income. Readers who are interested in the level of income for the top decile group of the income distribution should refer to the Department of Social Security publication *Households Below Average Income 1979 to 1996-97*. This series, which uses data from the Family Resources Survey, contains an income adjustment for households at the top of the income distribution that is made using the Inland Revenue's Survey of Personal Incomes.

Fuller details of the concepts and methodology used are given in Appendix 3.

The results of the analysis are reported in three sections. The first looks at the effects for all households. However retired and non-retired households have distinct income and expenditure patterns and so the tax and benefit systems affect the two groups in very different ways. Therefore the second and third sections look separately at results for non-retired and retired households.

RESULTS FOR ALL HOUSEHOLDS

Overall effect

In broad terms households in the bottom half of the income distribution tend to be net gainers from the tax and benefit systems while those in the top half pay more in tax than they receive as benefits. Therefore, taken as a whole, government intervention leads to income being shared more equally between households. Table A summarises the overall effects.

TABLE A: Percentage shares of household income and Gini coefficients[1], 1997-98

	Percentage shares of equivalised income			
	Original income	Gross income	Disposable income	Post-tax income
Quintile group[2]				
Bottom	2	7	8	7
2nd	7	11	12	11
3rd	15	16	16	16
4th	25	23	23	22
Top	51	44	42	44
All households	100	100	100	100
Decile group[2]				
Bottom	1	3	3	2
Top	33	28	26	28
Gini coefficient (percent)	53	38	34	38

1 This is a measure of the dispersion of each definition of income (see Appendix 3, paragraph 51).
2 Households are ranked by equivalised disposable income.

The top fifth of households (those in the top quintile group) receive more than 50 per cent of all original income, which includes income from earnings, occupational pensions and investments. This compares with 2 per cent received by the bottom fifth. In contrast the amount received from cash benefits is higher for households lower down the income distribution than those at the top. This has the effect of increasing the share of gross income received by the bottom quintile to 7 per cent while the share of the top fifth is reduced to 44 per cent.

Direct taxes also have an equalising effect although the impact is much smaller than for cash benefits. Indirect taxes reverse this effect: the post-tax shares of income are almost exactly the same as those for gross income.

A similar picture emerges when Gini coefficients are calculated. This measure is the most widely used summary of the inequality of an income distribution (see Appendix 3, paragraph 51). It can take values from 0 to 100 per cent: a value of zero would indicate that each household had an equal share of income while higher values indicate greater inequality. The Gini coefficient for original income is 53 per cent. Cash benefits contribute the most to the reduction in inequality and this reduces the value to 38 per cent. As with the shares of income, there is little net effect on the Gini coefficient when direct and indirect taxes are considered together.

Characteristics of households

Different types of household are not evenly spread throughout the income distribution. Information about the characteristics of households in the different income groups is shown in Table B with more detail in Appendix 1, Table 2b.

On average there are 2.4 people in each household. Although this figure does not vary much across the income distribution, the split between adults and children varies by income group. In particular there are more children in the lower half of the distribution and the bottom decile group has three times as many children as the top decile group. There are also differences between the patterns for women and men: women are spread fairly evenly across income groups while there are more men in the top half of the distribution. The number of economically active people increases with increasing household income with the top fifth of households having more than three times as many economically active people compared to the bottom fifth.

One adult households with children are concentrated in the lower income groups: over three-quarters of these households are in the bottom two quintile groups. This group makes up the majority of lone parent families; however some lone parents will be part of larger households and be included in other household types. For non-retired two adult households with children, the position in the income distribution tends to vary according to the number of children with those with three or more children tending to be in lower income groups than those with only one or two. This reflects the fact that two adult households with three or more children are less likely to have two economically active adults compared

TABLE B: Summary of the effects of taxes and benefits by quintile groups[1], 1997-98

	Quintile groups of households[1]					
	Bottom	2nd	3rd	4th	Top	All households
Income, taxes and benefits per household (£ per year)[2]						
Original income	2 520	6 780	15 530	25 960	47 610	19 680
plus cash benefits	4 780	4 990	3 590	2 050	1 120	3 300
Gross income	7 300	11 780	19 120	28 000	48 720	22 980
less direct taxes[3] and employees' NIC	750	1 500	3 360	5 860	11 440	4 580
Disposable income	6 550	10 280	15 760	22 140	37 280	18 400
less indirect taxes	2 010	2 550	3 570	4 680	5 770	3 720
Post-tax income	4 540	7 730	12 180	17 460	31 520	14 690
plus benefits in kind	3 890	3 300	3 150	2 660	2 070	3 010
Final income	8 430	11 030	15 330	20 120	33 590	17 700
Number of individuals per household						
Children[4]	0.8	0.5	0.6	0.5	0.4	0.5
Adults	1.6	1.7	1.9	2.0	1.9	1.8
Men	*0.7*	*0.8*	*0.9*	*1.0*	*1.0*	*0.9*
Women	*0.9*	*0.9*	*1.0*	*1.0*	*0.9*	*0.9*
People	2.4	2.2	2.5	2.5	2.3	2.4
People in full-time education	0.7	0.5	0.5	0.4	0.3	0.5
Economically active people	0.5	0.8	1.3	1.6	1.7	1.2
Retired people	0.5	0.6	0.5	0.3	0.2	0.4
Household type (percentages)						
Retired	38	41	27	14	9	26
Non-retired						
1 adult	14	12	11	16	22	15
2 adults	9	12	18	26	35	20
1 adult with children[5]	15	8	4	1	1	6
2 adults with children	18	16	25	24	20	20
3 or more adults[6]	6	11	16	19	14	13
All household types	100	100	100	100	100	100

1 Households are ranked by equivalised disposable income.
2 All the tables in Part 1 of this article show unequivalised income. Equivalised income has only been used in the ranking process to produce the quintile groups (and to produce the percentage shares and Gini coefficients).
3 These are income tax (which is after tax relief at source on mortgage interest and life assurance premiums) and Council tax, domestic rates and water charges but after deducting discounts, Council tax benefit and rate rebates.
4 Children are defined as people aged under 16 or aged between 16 and 18, unmarried and receiving non-advanced further education.
5 This group is smaller than the category of 'one parent families' because some of these families will be contained in the larger household types.
6 With or without children.

to those with one or two children. In addition those with three or more children will have a higher equivalence value than households with fewer children which will tend to pull them down the income distribution. Where there are no children in the household, non-retired two adult households tend to be found at the top of the distribution.

Retired households are over-represented at the lower end of the distribution: 64 per cent are in the bottom two fifths. This over-representation is higher for one adult retired households than those with two or more adults. In addition those with one retired woman are more concentrated towards the bottom compared to those with one retired man.

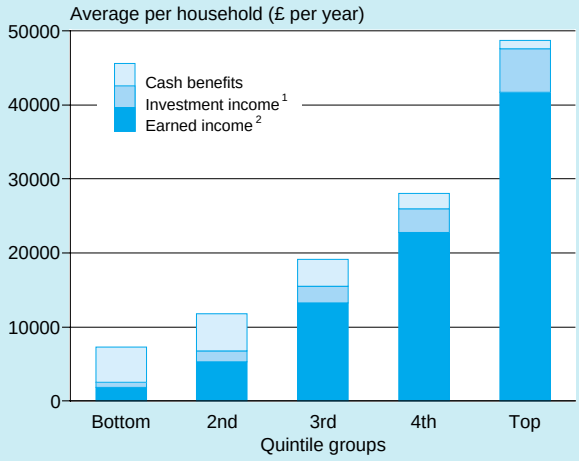
Stages of redistribution

Details of the amounts which households in each quintile receive under the various measures of income are shown in Table B with more detailed information for decile groups in Appendix 1, Table 2a. The average household receives a little under £20,000 in original income but this varies widely between households. Those in the top quintile have around £48,000 compared to £2,500 for the lowest. This pattern is driven by differences in the numbers of economically active people and the employment status of the chief economic supporter between the groups. For example almost 90 per cent of adults in the top quintile group are economically active compared to only 30 per cent of those in the lowest. The chief economic supporters in the top fifth are predominantly full-time employees or self-employed while those in the bottom fifth are more likely to work part time or be unemployed or inactive.

For the average household, earnings from employment or self-employment are the most important source of income making up more than 70 per cent of gross income. However cash benefits are also an important source, particularly for households in the lower half of the income distribution. On average households in the bottom two quintiles receive £4,900 in cash benefits which represents around two thirds of gross income for the bottom quintile group and a little over two fifths for the next quintile (Chart 2).

Chart 2

Sources of gross income by quintile groups of equivalised disposable income, 1997-98



1 Investment income includes occupational pensions and annuities.
2 Earned income includes wages and salaries, income from self-employment and income from 'fringe benefits'.

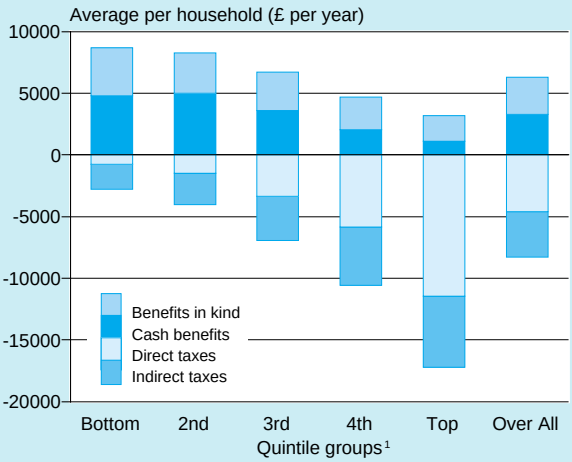
The direct tax system is progressive which means that as taxable income increases a higher proportion is taken as direct tax. The top quintile households pay an average of more than £11,000 in direct tax compared to £750 for those in the bottom group. The indirect tax system has a different effect: households with higher incomes still pay more indirect tax in absolute terms but not as a proportion of their incomes.

The final stage in the redistribution process is the addition of benefits in kind such as from education and the health service. Households in the bottom quintile receive around £3,900 from these benefits which is almost twice the amount received by the top quintile group.

Taken as a whole, the tax and benefit systems redistribute income from high income households to those on low incomes. The average final income for the quintile groups ranges from £8,400 to £34,000, a ratio of one to four compared to a ratio of one to 19 before government intervention. The differing impact for each quintile group is shown in Chart 3.

Chart 3

Summary of the effects of taxes and benefits on ALL households, 1997-98



1 Households are ranked throughout by equivalised disposable incomes.

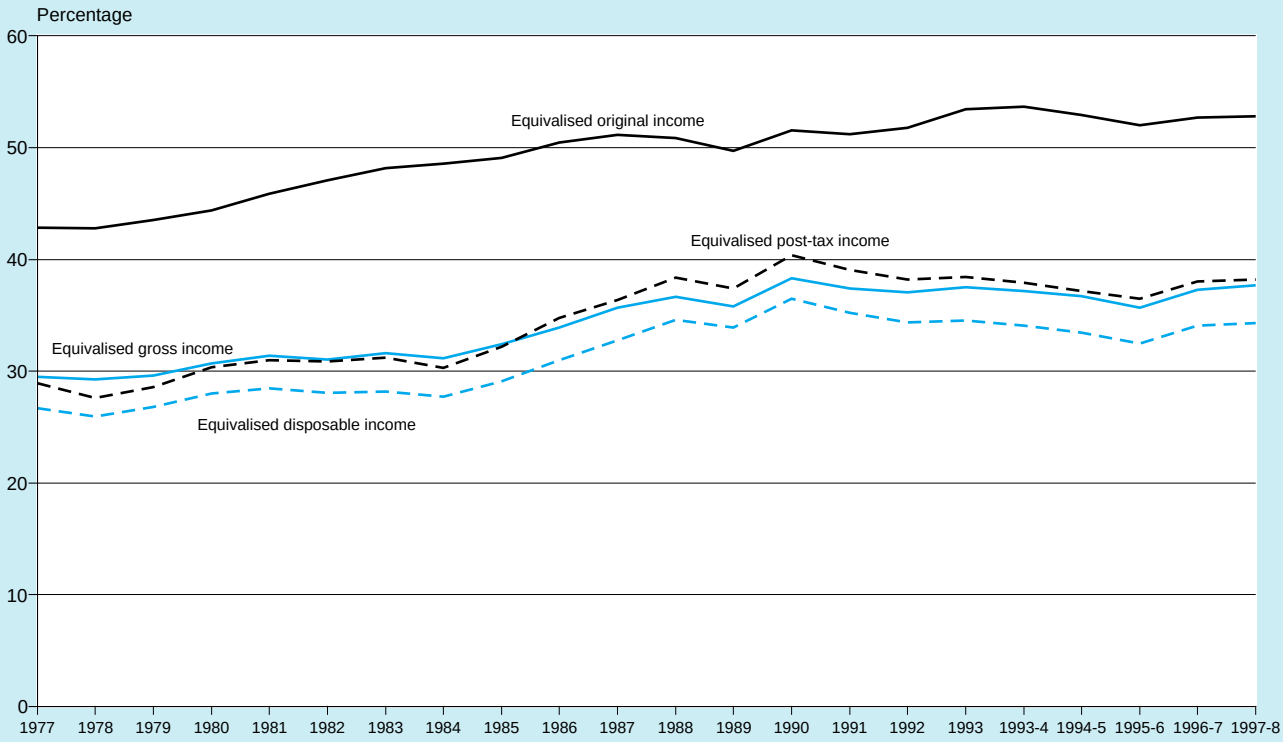
Changes in inequality over time

Chart 4 shows how inequality has been changing since 1977 for the various measures of income. Inequality in original income has risen considerably since the late 1970s: the Gini coefficient rose from 43 per cent in 1977 to a high of 54 per cent in 1993-94. Since then the growth seems to have stopped and the coefficient has been stable at around 53 per cent from 1994-95 to 1997-98.

The pattern for inequality in disposable income is slightly different. For this measure of income, inequality was stable in the first half of the 1980s, with a Gini coefficient of around 28 per cent. There then followed a period of rapidly increasing inequality with the coefficient

Chart **4**

Gini coefficients 1977 to 1997-98



reaching a peak of 36 per cent in 1990. This then fell to around 33 per cent in 1995-96. As with all measures derived from sample surveys, these figures are subject to sampling errors. The Institute for Social and Economic Research, University of Essex, has calculated standard errors and confidence intervals for the Gini coefficients for disposable income in each year. These statistics allow us to determine whether the estimated changes in inequality are real changes or simply the result of sampling variation. The application of a standard statistical test confirms that inequality was lower in 1995-96 than in 1991. However the small increase seen in the Gini coefficient between 1995-96 and 1996-97 is within the bounds of sampling variation rather than a real change.

In recent years the trends in inequality for gross income and post-tax income have been very similar to the trend for disposable income.

RESULTS FOR NON-RETIRED HOUSEHOLDS

Overall effect

As for all households, the tax and benefit systems lead to income being shared more equally between non-retired households. Before government intervention original income is shared more equally between non-retired households than for all households. After the process of redistribution, the shares of income and Gini coefficient for post-tax income are virtually the same as those for all households (Table C). The redistribution effect is therefore smaller for non-retired

TABLE C: Percentage shares of household income and Gini coefficients[1] for NON-RETIRED households, 1997-98

	Percentage shares of equivalised income for NON-RETIRED households			
	Original income	Gross income	Disposable income	Post-tax income
Quintile group[2]				
Bottom	3	6	7	6
2nd	9	11	12	11
3rd	17	17	17	16
4th	25	23	23	23
Top	47	43	41	44
All non-retired households	100	100	100	100
Decile group[2]				
Bottom	1	2	3	2
Top	30	27	26	28
Gini coefficient (percent)	46	37	34	38

1 This is a measure of the dispersion of each definition of income (see Appendix 3, paragraph 51).
2 Households are ranked by equivalised disposable income.

households than for all households. A summary of the effects of taxes and benefits on non-retired households is shown in Table D with more detail in Appendix 1, Table 3a.

Characteristics of households

Unlike all households, the average household size tends to decrease as income increases. This fall is more than accounted for by the decrease in the average number of children in each household from 1.1 in the bottom quintile to 0.4 in the top quintile (Table D and Appendix 1, Table 3b).

Other patterns are similar to those for all households. One adult households with children are concentrated at the bottom of the distribution with around 60 per cent of these households in the bottom quintile and a further 25 per cent in the second quintile. Two adult households with three or more children are also concentrated at the bottom although not to the same extent while two adult households with no children are over-represented at the top.

For one adult non-retired households with no children there are distinct patterns for men and women. Households containing only one man tend to be over represented in the top and bottom quintiles while one woman households are more evenly spread throughout the distribution.

Original income

The average original income for non-retired households is around £24,000. For the lowest quintile the figure is £3,700 while the original income for the highest quintile group is £52,000 giving a ratio of one to 14.

The original income of a household shows a relatively strong relationship to the number of economically active people it contains. On average households in the top quintile contain more than twice as many economically active people than those in the lowest group.

TABLE D: Summary of the effects of taxes and benefits on NON-RETIRED households by quintile groups[1], 1997-98

	Quintile groups of NON-RETIRED households[1]					All non-retired households
	Bottom	2nd	3rd	4th	Top	
Income, taxes and benefits per household (£ per year)						
Original income	3 730	12 690	21 820	30 970	52 440	24 330
plus cash benefits	4 740	3 740	2 040	1 210	710	2 490
Gross income	8 480	16 430	23 860	32 180	53 150	26 820
less direct taxes[2] and employees' NIC	910	2 620	4 760	7 080	12 730	5 620
Disposable income	7 570	13 810	19 100	25 090	40 430	21 200
less indirect taxes	2 410	3 570	4 240	5 220	5 990	4 290
Post-tax income	5 160	10 230	14 860	19 870	34 440	16 910
plus benefits in kind	4 330	3 710	3 070	2 540	1 980	3 130
Final income	9 490	13 950	17 930	22 410	36 410	20 040
Number of individuals per household						
Children[3]	1.1	0.9	0.7	0.5	0.4	0.7
Adults	1.7	2.0	2.1	2.1	1.9	1.9
Men	*0.8*	*1.0*	*1.1*	*1.1*	*1.0*	*1.0*
Women	*0.9*	*1.0*	*1.0*	*1.0*	*0.9*	*1.0*
People	2.8	2.9	2.8	2.6	2.3	2.7
People in full-time education	1.0	0.8	0.6	0.4	0.3	0.7
Economically active people	0.8	1.4	1.8	1.9	1.8	1.5
Retired people	0.0	0.1	0.1	0.1	0.0	0.1

1 Households are ranked by equivalised disposable income.
2 These are income tax (which is after tax relief at source on mortgage interest and life assurance premiums) and council tax, domestic rates and water charges but after deducting discounts, council tax benefit and rate rebates.
3 Children are defined as people aged under 16 or aged between 16 and 18, unmarried and receiving non-advanced further education.

Cash benefits

Table E gives a summary of the benefits that each quintile group receives. There are two types of benefits: contributory benefits, which are paid from the National Insurance Fund to which individuals and their employers make contributions while working, and non-contributory benefits. For non-retired households, non-contributory benefits make up 70 per cent of all cash benefit income.

TABLE E: Cash benefits for NON-RETIRED households by quintile group[1], 1997-98

non-	Quintile groups of NON-RETIRED households[1]					All retired house-
holds	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Contributory						
Retirement pension	100	460	430	290	220	300
Incapacity benefit	520	540	310	190	120	340
Job seeker's allowance[2]	100	40	30	20	10	40
Other	80	70	70	70	60	70
Total contributory	800	1 110	840	560	400	740
Non-contributory						
Income support	1 380	610	150	50	10	440
Child benefit	620	490	390	270	200	390
Housing benefit	1 070	610	160	30	0	380
Job seeker's allowance[3]	230	80	30	10	10	70
Sickness/ disablement related	210	510	310	200	40	250
Other	440	330	160	90	50	210
Total non-contributory	3 950	2 630	1 200	650	310	1 750
Total cash benefits	4 740	3 740	2 040	1 210	710	2 490
Cash benefits as a percentage of gross income	56	23	9	4	1	9

1 Households are ranked by equivalised disposable income.
2 Contribution based.
3 Income based.

Most non-contributory benefits, in particular income support and housing benefit, are income related and so payments are concentrated in the two lowest quintile groups. However the presence of some individuals with low incomes in high income households means that some payments are recorded further up the income distribution. About 60 per cent of income support and housing benefit paid to non-retired households goes to households in the bottom fifth of the distribution. Child benefit payments are based on the number of children in the household. The payments are higher at the lower end of the distribution as these households tend to have more children. Contributory benefits, for which the individual's contribution record rather than income is a criterion for payment, are highest for the second quintile group.

For all non-retired households, cash benefits provide 9 per cent of gross income. However for those in the bottom quintile group they form a much larger proportion – 56 per cent. Their payment results in a significant reduction in income inequality.

Direct taxes

Households at the lower end of the income distribution pay a smaller proportion of their income in direct taxes than households at the higher end due to the progressive nature of the income tax system (Table F). Households in the bottom fifth pay less than 4 per cent of their gross income in income tax on average compared to 18 per cent for those in the top quintile.

TABLE F: Taxes as a percentage of gross income for NON-RETIRED households by quintile group[1], 1997-98

non-	Quintile groups of NON-RETIRED households[1]					All retired house-
holds	Bottom	2nd	3rd	4th	Top	
Percentages						
Direct taxes						
Income tax[2]	3.7	7.9	11.4	13.8	17.9	13.7
Employees' NIC	2.3	4.4	5.5	5.8	4.3	4.8
Local taxes[3]	4.8	3.6	3.0	2.4	1.7	2.5
All direct taxes	10.7	15.9	19.9	22.0	23.9	21.0
All indirect taxes	28.5	21.7	17.8	16.2	11.3	16.0
All taxes	39.2	37.7	37.7	38.2	35.2	36.9

1 Households are ranked by equivalised disposable income.
2 After tax relief at source on mortgage interest and life assurance premiums.
3 Council tax, domestic rates and water charges after deducting discounts, council tax benefit and rate rebates.

For National Insurance (NI) contributions, households in the top quintile pay a slightly smaller proportion of their gross income in these contributions than those in the third and fourth quintiles. This is because NI contributions are only levied on the first £465 of weekly earnings in 1997-98.

Local taxes mainly consist of council tax in Great Britain and domestic rates in Northern Ireland and are shown net of council tax benefit and rates rebates in Table F. Households in the lower part of the income distribution pay smaller absolute amounts in local taxes – net payments by the bottom quintile are on average around 45 per cent of those in the top fifth. However, when expressed as a proportion of gross income, the burden decreases as income rises – local taxes represent almost 5 per cent of gross income for the bottom fifth but less than 2 per cent for those in the top quintile.

Indirect taxes

The amount of indirect tax that each household pays is estimated from its expenditure recorded in the FES. However the income and expenditure data recorded in the FES are not fully compatible because they are compiled in different ways (see Appendix 3, paragraph 33). Indeed, measured expenditure exceeds measured income in the lower half of the distribution. There are a number of possible explanations for this. Some households with low incomes may draw on their savings or borrow in order to finance their expenditure. In these cases expenditure taxes are not being met from current income. For a minority of households the FES may be measuring incomes inaccurately. Therefore to give a more complete picture of the impact of indirect taxes they are shown in Table G as a proportion of disposable income and, separately, as a proportion of expenditure. In addition indirect taxes are also shown as a proportion of gross income in Table F so that the burden of direct and indirect taxes can be compared.

In cash terms, the top fifth of households pay around two and a half times as much in indirect taxes as the bottom fifth. However, whether expressed as a percentage of disposable income or expenditure, the proportion paid in indirect taxes tends to be lower for households at the top of the distribution compared to those lower down.

When expressed as a proportion of disposable income, the impact of indirect taxes declines sharply for the higher income groups as these households tend to channel a higher proportion of their disposable income into savings, investments and mortgage payments which do not attract indirect taxes. Indirect taxes appear less regressive when expressed as a proportion of expenditure with payments rising broadly in line with expenditure. However the top fifth still pay a smaller proportion of their expenditure in indirect taxation. In particular the burden of tobacco duty is much heavier on households in the lower half of the distribution.

Taken together, the burden of direct and indirect taxes is broadly flat across the income distribution. The average non-retired household pays 37 per cent of gross income in taxes and there is little variation by income group (Table F).

Benefits in kind

The Government provides certain goods and services to households

TABLE G: Indirect taxes as a percentage of (a) disposable income and (b) household expenditure[1] for NON-RETIRED households by quintile group[2], 1997-98

	Quintile groups of NON-RETIRED households[2]					All non-retired households
	Bottom	2nd	3rd	4th	Top	
(a) Percentages of disposable income						
VAT 11.7	10.1	8.9	8.9	6.8	8.5	
Duty on alcohol	1.7	1.4	1.3	1.3	0.8	1.1
Duty on tobacco	5.4	3.3	2.2	1.6	0.6	1.8
Duty on hydrocarbon oils and vehicle excise duty	3.4	3.3	3.2	2.8	1.8	2.6
Other indirect taxes	9.7	7.8	6.6	6.2	4.8	6.2
All indirect taxes	31.9	25.9	22.2	20.8	14.8	20.2
(b) Percentages of expenditure[1]						
VAT 8.1	8.2	8.1	8.0	6.8	7.6	
Duty on alcohol	1.2	1.1	1.1	1.1	0.8	1.0
Duty on tobacco	3.7	2.7	2.0	1.4	0.6	1.6
Duty on hydrocarbon oils and vehicle excise duty	2.4	2.6	2.8	2.5	1.8	2.4
Other indirect taxes	6.7	6.3	6.0	5.6	4.8	5.6
All indirect taxes	22.1	21.0	20.0	18.6	14.9	18.3

1 Calculated to be consistent with disposable income. See paragraph 33 of Appendix 3 for the definition of expenditure.
2 Households are ranked by equivalised disposable income.

either free at the time of use or at subsidised prices. These benefits in kind are allocated to individual households in order to arrive at final income. The imputed value of these benefits is based on the estimated cost of providing them. The largest two items for which such imputations are made are health and education services. The 1997 expenditure on these that is allocated in this analysis is equivalent to around 25 per cent of total general government expenditure. Other items for which imputations are made are school meals and welfare milk, housing subsidy and travel subsidies. These items are equivalent to a further 1.2 per cent of general government expenditure. Table H

TABLE H: Benefits in kind for NON-RETIRED households by quintile group[1], 1997-98

non-	Quintile groups of NON-RETIRED households[1]					All retired house-
holds	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Education	2 600	2 030	1 480	1 090	660	1 570
National health service	1 460	1 540	1 500	1 370	1 180	1 410
Housing subsidy[2]	110	70	30	10	0	50
Travel subsidies	40	50	60	70	120	70
School meals and welfare milk	120	30	10	0	0	30
All benefits in kind	4 330	3 710	3 070	2 540	1 980	3 130
Benefits in kind as a percentage of post-tax income	84	36	21	13	6	18

1 Households are ranked by equivalised disposable income.
2 Does not include tax relief at source on mortgage payments. These are taken into account in the income tax payments shown in Table E.

gives a summary of the value of these benefits for each quintile group.

The benefit in kind from education is allocated to a household according to its members' use of state education (Appendix 3, paragraph 36). Households in the bottom quintile receive the highest benefit from education. This is due to the concentration of children in this part of the distribution. In addition most of the households that contain only students, for whom education costs are greatest, are found in the bottom quintile. There will however be benefit from higher education further up the distribution where students are living with their parents. The impact of expenditure on school meals and welfare foods is greatest in the lower income groups where children are more likely to have school meals provided free of charge.

The benefit from the health service is estimated according to the age and sex of the household members rather than their actual use of the service as the FES does not contain this information (Appendix 3, paragraph 38). The imputed benefit is relatively high for young children, low in later childhood and through the adult years until it begins to rise from late middle age onwards. This benefit falls gradually as income rises and this pattern is a reflection of the demographic composition of the households.

The housing subsidy, which excludes housing benefit and mortgage interest tax relief (see Appendix 3, paragraph 39), is spread between public sector tenants and since such households tend to be concentrated in the lower half of the income distribution this is where the imputed benefit is highest.

Travel subsidies cover the support payments made to bus and train operating companies. The use of public transport by non-retired households is partly related to the need to travel to work and therefore to the number of economically active people in a household. This results in these subsidies increasing as income increases. This pattern is also due to London having high levels of commuting by public transport together with higher than average household incomes.

Taken together the absolute value of these benefits in kind declines as household income increases. The ratio of benefits in kind to post-tax income decreases from 84 per cent for the lowest quintile group to 6 per cent for the highest. This indicates that these benefits contribute to the reduction in inequality.

The effects of taxes and benefits by household type

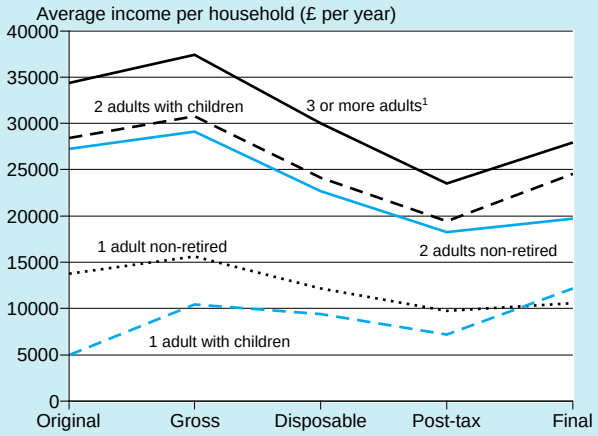
The tax and benefit systems affect different types of household in different ways reflecting, in part, the number and ages of people within each household type. Of the types of non-retired households shown in Chart 5, only those containing one adult and children are net gainers with average final incomes of more than £12,000 compared to original incomes of £4,900. Table 8 in Appendix 1 has a more detailed breakdown that shows that households with two adults and three or more children are also net beneficiaries but to a smaller extent.

Original income is strongly related to the number of adults in the household. For two adult households, the presence of children makes little difference to average original incomes or the broad effect of cash benefits and taxes. Final incomes are higher for two adults with children compared to households with only two adults due to the imputed benefit in kind from education.

For one adult households, original income is much lower for those with

Chart 5

Income stages by non-retired household types, 1997-98



1 With or without children.

children as the adult is less likely to be economically active. Benefits, both in cash and in kind, are significantly higher for those with children. One man households receive around 30 per cent more original income than those with only one woman but, after the effects of taxes and benefits, this figure is reduced to 17 per cent for final income.

RESULTS FOR RETIRED HOUSEHOLDS

In this analysis retired households are those where the income of retired household members accounts for more than half of the household gross income (see Appendix 3, paragraph 9 for a definition of a retired person). These households have quite distinct income and expenditure patterns and so the tax and benefit systems affect them in different ways from non-retired households.

There is a high degree of inequality in original income between retired households: Table J shows a Gini coefficient of 66 per cent, which is much higher than the 46 per cent for non-retired households. However after the impact of cash benefits and taxes has been taken into account there is a large reduction in inequality which reduces the coefficient for retired households to 32 per cent compared to 38 per cent for non-retired households. Cash benefits play by far the largest part in bringing about this reduction for retired households and income tax payments make a further, though much smaller, contribution. Payments of indirect taxes result in an increase in inequality.

Overall retired households receive an average of £6,100 in original income with most of this coming from occupational pensions and investments (Table K). This ranges from £950 for the bottom quintile to more than £19,000 for the top. On the other hand, amounts received from cash benefits vary less across the distribution: the bottom fifth typically receive around £4,600 from this source while

TABLE J: Percentage shares of household income and Gini coefficients[1] for RETIRED households, 1997-98

for	Percentage shares of equivalised income RETIRED households[2]			
	Original income	Gross income	Disposable income	Post-tax income
Quintile group[2]				
Bottom	3	10	10	9
2nd	6	13	14	14
3rd	10	16	17	16
4th	18	21	21	22
Top	63	41	38	39
All retired households	100	100	100	100
Decile group[2]				
Bottom	1	4	4	4
Top	45	26	24	25
Gini coefficient (percent)	66	31	28	32

1 This is a measure of the dispersion of each definition of income (see Appendix 3, paragraph 51).
2 Households are ranked by equivalised disposable income.

those in the fourth quintile receive £6,700. These cash benefits make up large proportions of the gross income for the bottom four quintiles ranging from 83 per cent for the bottom quintile to 54 per cent for the fourth quintile. The top fifth are much less dependent on cash benefits – these account for only 22 per cent of their gross incomes.

Most retired people will have made contributions to the National Insurance Fund throughout their working lives. The bulk of the benefits which retired households receive will be paid out of this fund in the form of contributory benefits, the most significant of which is the retirement pension which accounts for more than 70 per cent of their cash benefits (Appendix 1, Table 4A).

Non-contributory benefits are lowest in the bottom quintile group where more than two-thirds of the households own their homes outright and so receive little in the way of housing benefit. In addition, disability benefits sometimes make up a significant proportion of the income of a retired household and its receipt may push a household up the income distribution. This does not necessarily mean that households receiving disability benefits have a higher standard of living than those lower down the income distribution as the income from these benefits will be offset by the higher expenditure that these benefits are supposed to address.

Retired households derive significant benefits from health services and, to a lesser extent, the housing subsidy and travel subsidies. Health benefit is spread fairly evenly between retired households whereas benefit from the housing subsidy is substantially higher for the middle three quintiles

TABLE K: Summary of the effects of taxes and benefits on RETIRED households by quintile group[1], 1997-98

	Quintile groups of retired households[1]					All retired households
	Bottom	2nd	3rd	4th	Top	
Income, taxes and benefits per household (£ per year)						
Original income						
Earnings	50	70	180	330	750	280
Occupational pensions	520	1 120	1 920	4 090	11 900	3 910
Investment income	360	420	670	1 280	6 610	1 870
Other income	20	50	60	50	30	40
Total original income	950	1 670	2 840	5 750	19 290	6 100
plus Contributory benefits	4 090	4 460	4 400	4 510	4 340	4 360
Non-contributory benefits	460	1 210	1 550	2 160	1 250	1 330
Gross income	5 510	7 330	8 790	12 420	24 890	11 790
less Income tax[2]	70	140	280	750	3 460	940
Employees' NIC	0	0	10	20	40	10
Local taxes[3]	500	490	540	600	880	600
Disposable income	4 930	6 710	7 960	11 050	20 510	10 230
less Indirect taxes	1 330	1 390	1 690	2 120	3 720	2 050
Post-tax income	3 600	5 310	6 270	8 930	16 790	8 180
plus National health service	2 710	2 550	2 370	2 510	2 500	2 530
Housing subsidy[4]	30	90	80	60	20	50
Other benefits in kind	120	60	110	140	100	110
Final income	6 460	8 010	8 830	11 640	19 410	10 870

1 Households are ranked by equivalised disposable income.
2 After tax relief at source on mortgage interest and life assurance premiums.
3 Council tax, local rates and water charges after deducting discounts, council tax benefit and rate rebates.
4 Does not include tax relief at source on mortgage payments, which is included in the income tax payments shown above.

since public sector tenants are concentrated in these groups. The benefits received by retired households from travel subsidies are mainly for bus travel, particularly in the form of concessionary fares and passes for senior citizens, and since these are not usually means-tested there is no particular relationship with income.

Table 8 in Appendix 1 gives some details of the effect of taxes and benefits on different types of retired household. On average, both one adult retired households and those with two or more adults are net gainers from the tax and benefit systems. For one adult retired households there are distinct differences in original income by gender. Men receive almost twice as much original income as women on average: £5000 for men compared with £2600 for women. However after the addition of benefits and the deduction of taxes the differences are greatly reduced so that men have final incomes around 9 per cent higher than women.

The author gratefully acknowledges the considerable work done by Tony Newman and Dave Westcott for this study.

APPENDIX 1

Detailed tables for 1997-98

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TABLE 1 (Appendix 1) Taxes and benefits allocated to households as a percentage of general government expenditure, 1997

Taxes and compulsory social contributions[1] allocated to households	£ million	% of GGE[2]	Benefits allocated to households	£ million	% of GGE[2]
Income tax (gross)	72 200	22.9	Cash benefits		
Tax reliefs (MIRAS, etc)	-2 590	-0.8			
Income tax (net)	69 610	22.0	Contributory		
			Retirement	33 490	10.6
			Widows and guardians	990	0.3
Employees' & self-employed NI contributions	22 700	7.2	Unemployment/ Job seekers allowance	620	0.2
Council tax	10 570	3.3	Incapacity benefit	7 580	2.4
			Maternity/Statutory maternity pay	540	0.2
Taxes on final goods and services			Other	380	0.1
VAT	36 910	11.7			
Duty on beer	2 590	0.8	Non-contributory		
Duty on wines, cider, perry and spirits	2 910	0.9	Family benefits	9 330	3.0
Customs duties, etc	1 340	0.4	Income support	12 050	3.8
Betting duties	1 470	0.5	War pensions	1 310	0.4
Duty on tobacco	7 930	2.5	Other	15 360	4.9
Duty on hydrocarbon oils	8 470	2.7			
Vehicle excise duty	2 970	0.9	Student maintenance grants	1 500	0.5
Camelot: payments to NLDF	1 510	0.5			
Other	2 600	0.8	Rent rebates and allowances	11 190	3.5
Taxes & NI contributions on intermediate goods & services[3]			Benefits in kind		
Employers' NI contributions	9 060	2.9			
Commercial & industrial rates	6 730	2.1	Health services	42 750	13.5
Duty on hydrocarbon oils	4 900	1.6	Education	35 300	11.2
VAT	2 990	0.9	School meals and welfare milk	810	0.3
Vehicle excise duty	760	0.2	Housing subsidy	1 210	0.4
Other	1 200	0.4	Travel subsidies[4]	1 690	0.5
Total	197 220	62.5	Total	176 100	55.8

1 Paid to UK central and local government and European Union institutions.
2 Expressed as a percentage of general government expenditure.
3 These are taxes paid by industry and commerce assumed to be passed on to households in the prices of goods and services they buy. For instance, duty on derv used in the transportation of goods is an 'intermediate' tax whereas the duty on petrol bought by the private motorist is a tax on final goods and services.
4 Including concessionary fares expenditure.

Source: United Kingdom National Accounts, 1998 Edition

TABLE 2A (Appendix1) : Average incomes, taxes and benefits by decile groups of ALL households, 1997-98

	Decile groups of all households ranked by equivalised disposable income										All households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (£ per year)											
Decile points (equivalised £)	*6 766*	*8 504*	*10 146*	*11 922*	*13 917*	*16 342*	*19 316*	*23 457*	*30 451*		
Number of households in the population ('000s)	2 456	2 453	2 457	2 461	2 452	2 457	2 453	2 458	2 455	2 453	24 556
Original income											
Wages and salaries	884	2 143	3 250	6 115	10 188	13 993	17 705	23 923	28 688	41 450	14 834
Imputed income from benefits in kind	13	4	10	58	70	114	265	375	664	1 364	294
Self-employment income	319	314	416	729	995	1 142	1 619	1 783	2 723	8 430	1 847
Occupational pensions, annuities	151	454	733	1 148	1 537	1 472	1 912	2 208	2 377	3 171	1 516
Investment income	236	213	289	401	550	673	811	1 028	1 469	4 492	1 016
Other income	177	141	199	215	209	122	253	105	129	186	173
Total	1 779	3 268	4 897	8 667	13 549	17 516	22 566	29 421	36 049	59 093	19 680
Direct benefits in cash											
Contributory											
Retirement pension	1 294	1 852	2 204	1 767	1 639	1 322	914	787	558	554	1 289
Job seeker's allowance (Contribution based)	92	54	32	28	23	24	26	16	7	9	31
Incapacity benefit	249	381	425	432	422	287	234	193	151	101	288
Widows' benefits	38	49	67	47	15	54	38	34	39	13	39
Statutory Maternity Pay/ Allowance	3	3	7	6	20	17	18	34	35	46	19
Non-contributory											
Income support	946	970	565	583	328	265	184	31	52	7	393
Child benefit	448	374	266	305	329	309	276	246	221	157	293
Housing benefit	591	928	891	738	338	280	148	22	29	3	397
Job seeker's allowance (Income based)	215	99	49	76	51	20	14	5	3	6	54
Invalid care allowance	16	39	32	65	59	25	19	15	8	7	29
Attendance allowance	6	49	78	95	162	193	79	43	18	7	73
Disability living allowance	71	99	186	354	292	185	191	83	52	15	153
War pensions / War widows' pensions	-	6	21	17	47	103	43	68	5	10	32
Severe disablement allowance	17	27	27	44	58	21	23	15	6	-	24
Industrial injury disablement benefit	2	12	21	11	21	33	7	48	10	-	17
Student maintenance awards	158	49	48	158	32	72	61	51	53	14	70
Government training schemes	18	30	24	15	19	15	23	24	17	2	19
Family credit	105	180	121	118	38	22	24	4	2	-	61
Other non-contributory benefits	39	41	40	25	16	21	33	23	2	11	25
Total cash benefits	4 308	5 244	5 105	4 884	3 909	3 268	2 355	1 742	1 267	963	3 304
Gross income	6 087	8 512	10 001	13 550	16 458	20 784	24 921	31 163	37 317	60 056	22 985
Direct taxes and Employees' NIC											
Income tax	196	307	471	939	1 651	2 308	3 216	4 481	5 793	11 677	3 104
less: Tax relief at source[1]	44	37	44	71	113	135	176	212	257	278	137
Employees' NI contributions	75	141	215	414	718	985	1 249	1 646	1 967	2 147	956
Local taxes[2]	642	649	661	697	724	737	770	830	865	985	756
less: Council tax benefit / Rate rebates	222	210	162	124	80	66	44	19	15	21	96
Total	647	850	1 141	1 855	2 900	3 829	5 014	6 726	8 352	14 511	4 583
Disposable income	5 440	7 661	8 860	11 695	14 558	16 955	19 907	24 437	28 965	45 545	18 402
Equivalised disposable income	*5 225*	*7 704*	*9 321*	*11 047*	*12 913*	*15 102*	*17 749*	*21 278*	*26 453*	*45 165*	*17 196*
Indirect taxes											
Taxes on final goods and services											
VAT	743	747	808	1 148	1 367	1 538	1 784	2 178	2 285	2 966	1 556
Duty on tobacco	315	276	288	362	354	365	363	341	319	221	320
Duty on beer and cider	52	52	55	80	85	113	136	163	137	148	10
Duty on wines	12	10	12	18	29	24	35	55	59	99	35
Duty on spirits	43	41	46	52	58	64	89	105	103	96	70
Duty on hydrocarbon oils	157	161	174	267	320	389	445	527	534	546	352
Vehicle excise duty	54	52	62	88	107	131	149	170	175	171	116
Television licences	78	78	80	82	84	85	85	87	89	87	83
Stamp duty on house purchase	9	5	7	12	16	18	24	30	49	76	24
Customs duties	28	29	28	40	44	51	57	69	70	89	50
Betting taxes	31	41	41	58	61	56	77	97	64	75	60
Fossil fuel levy	3	3	3	3	3	3	4	4	4	4	4
Camelot National Lottery Fund	38	45	44	60	72	75	78	77	73	56	62
Other	22	23	26	32	49	43	54	72	94	91	51
Intermediate taxes											
Commercial and industrial rates	112	110	119	162	188	207	237	280	306	394	211
Employers' NI contributions	150	147	162	221	252	279	319	376	416	538	286
Duty on hydrocarbon oils	95	91	100	135	148	164	188	213	244	307	168
Vehicle excise duty	13	13	14	20	21	24	27	31	36	46	24
Other	75	74	80	109	124	137	157	186	202	258	140
Total indirect taxes	2 031	1 997	2 151	2 950	3 382	3 767	4 307	5 061	5 259	6 268	3 717
Post-tax income	3 409	5 664	6 709	8 745	11 176	13 188	15 600	19 376	23 705	39 277	14 685
Benefits in kind											
Education	2 219	1 286	1 144	1 407	1 198	1 188	1 027	1 060	808	459	1 180
National health service	1 904	1 924	1 929	1 811	1 890	1 804	1 551	1 509	1 350	1 283	1 696
Housing subsidy	71	105	91	73	51	38	25	13	9	2	48
Rail travel subsidy	23	14	17	22	29	26	44	51	74	127	43
Bus travel subsidy	32	35	38	35	31	26	21	18	13	9	26
School meals and welfare milk	107	59	25	18	10	7	3	-	3	1	23
Total	4 356	3 422	3 244	3 365	3 209	3 089	2 671	2 651	2 258	1 882	3 015
Final income	7 765	9 086	9 954	12 111	14 385	16 277	18 271	22 027	25 964	41 159	17 700

1 On mortgage interest and life assurance premiums.
2 Council tax, domestic rates and water charges after deducting discounts.

TABLE 2B (Appendix 1) : Household characteristics of decile groups of ALL households, 1997-98

	Decile groups of all households ranked by equivalised disposable income										All households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (number)											
People	2.4	2.3	2.0	2.3	2.5	2.5	2.5	2.5	2.4	2.1	2.4
Adults	*1.6*	*1.6*	*1.6*	*1.8*	*1.9*	*2.0*	*2.0*	*2.1*	*2.0*	*1.8*	*1.8*
Men	*0.7*	*0.7*	*0.7*	*0.9*	*0.9*	*1.0*	*1.0*	*1.1*	*1.1*	*1.0*	*0.9*
Women	*0.9*	*0.9*	*0.9*	*0.9*	*1.0*	*1.0*	*1.0*	*1.0*	*0.9*	*0.8*	*0.9*
Children	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.6*	*0.5*	*0.5*	*0.4*	*0.3*	*0.5*
Economically active people	0.5	0.5	0.6	0.9	1.2	1.4	1.5	1.8	1.7	1.6	1.2
Retired people	0.5	0.6	0.7	0.5	0.6	0.4	0.3	0.2	0.2	0.2	0.4
People in full-time education	0.86	0.54	0.46	0.54	0.51	0.49	0.46	0.42	0.37	0.24	0.49
In state primary schools	*0.40*	*0.29*	*0.23*	*0.22*	*0.24*	*0.24*	*0.22*	*0.17*	*0.16*	*0.07*	*0.22*
In state secondary schools	*0.25*	*0.17*	*0.14*	*0.18*	*0.19*	*0.16*	*0.15*	*0.14*	*0.10*	*0.04*	*0.15*
In further and higher education	*0.18*	*0.07*	*0.07*	*0.12*	*0.06*	*0.07*	*0.06*	*0.08*	*0.06*	*0.05*	*0.08*
In other educational establishments	*0.03*	*0.02*	*0.01*	*0.02*	*0.01*	*0.02*	*0.02*	*0.02*	*0.05*	*0.08*	*0.03*
Composition (percentages)											
Household type											
Retired											
1 adult	22	21	31	21	13	13	8	5	4	3	14
1 adult men	*4*	*5*	*7*	*6*	*4*	*4*	*2*	*2*	*2*	*2*	*4*
1 adult women	*19*	*15*	*24*	*14*	*10*	*10*	*6*	*3*	*2*	*1*	*10*
2 or more adults	12	20	16	13	16	11	7	7	5	5	11
Non-retired											
1 adult	16	12	12	12	9	13	17	16	19	25	15
1 adult men	*12*	*8*	*6*	*7*	*4*	*7*	*11*	*8*	*14*	*19*	*10*
1 adult women	*5*	*4*	*6*	*5*	*5*	*6*	*6*	*7*	*5*	*6*	*6*
2 adults	10	8	11	14	18	17	24	27	32	38	20
3 or more adults	2	3	4	10	9	12	14	15	14	9	9
1 adult with children	14	16	9	7	5	3	2	1	1	0	6
2 adults with 1 child	6	4	4	7	9	9	8	12	9	9	8
2 adults with 2 children	6	8	6	7	13	13	11	10	11	6	9
2 adults with 3 or more children	8	4	3	4	3	4	4	2	2	1	4
3 or more adults with children	4	3	3	4	5	6	4	5	2	2	4
Household tenure											
Rented	46	62	58	49	32	29	24	12	11	10	33
Local authority rented	*28*	*44*	*35*	*26*	*17*	*15*	*9*	*3*	*2*	*1*	*18*
Housing association	*4*	*7*	*10*	*8*	*5*	*4*	*3*	*1*	*1*	*0*	*4*
Other rented unfurnished	*4*	*5*	*7*	*7*	*4*	*5*	*4*	*3*	*3*	*3*	*4*
Rented furnished	*8*	*5*	*5*	*6*	*4*	*5*	*5*	*5*	*5*	*4*	*5*
Rent free	*1*	*1*	*2*	*2*	*2*	*1*	*3*	*0*	*1*	*2*	*2*
Owner occupied	54	38	42	51	68	71	76	88	89	90	67
With mortgage	*18*	*14*	*16*	*27*	*39*	*46*	*53*	*62*	*69*	*70*	*41*
Rental purchase	*-*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*-*	*-*	*0*
Owned outright	*36*	*23*	*26*	*24*	*30*	*24*	*23*	*24*	*20*	*21*	*25*
Age of chief economic supporter											
Under 25	10	6	4	5	3	3	4	3	1	0	4
Over 24 and under 35	18	16	12	14	17	21	19	23	27	26	19
Over 34 and under 45	18	15	13	18	18	19	21	22	24	25	19
Over 44 and under 55	13	11	12	13	16	19	23	25	24	27	18
Over 54 and under 65	10	13	13	14	15	13	18	15	15	13	14
Over 64 and under 75	11	20	23	20	17	14	8	9	6	5	13
Over 74	21	18	23	16	13	11	8	3	3	4	12
Employment status of chief economic supporter											
Self-employed	5	4	4	6	6	5	7	7	9	15	7
Full-time employee at work	4	10	15	27	43	54	61	69	72	72	43
Part-time employee at work	11	10	10	10	7	5	5	5	5	2	7
Unemployed	13	9	5	5	3	4	4	3	3	2	5
Unoccupied and under minimum NI age	33	27	18	16	11	7	7	4	3	3	13
Retired/unoccupied over minimum NI age	33	40	47	37	31	24	16	11	8	7	26
Other	1	1	0	0	-	-	-	-	-	-	0

TABLE 3A (Appendix 1) : Average incomes, taxes and benefits by decile groups of NON-RETIRED households,1997-98

	Decile groups of non-retired households ranked by equivalised disposable income										All such households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (£ per year)											
Decile points (equivalised £)	*7 130*	*9 241*	*11 364*	*13 523*	*15 723*	*18 239*	*21 302*	*25 200*	*32 766*		
Number of households in the population ('000s)	1 830	1 834	1 826	1 829	1 831	1 831	1 827	1 829	1 828	1 828	18 292
Original income											
Wages and salaries	1 508	3 967	8 305	12 587	17 998	19 500	24 465	29 031	32 421	48 479	19 826
Imputed income from benefits in kind	17	6	55	97	106	247	381	558	804	1 649	392
Self-employment income	434	665	1 020	1 326	1 220	2 158	1 589	2 642	3 540	10 152	2 475
Occupational pensions, annuities	70	112	315	600	474	773	829	990	1 220	1 582	696
Investment income	152	96	196	234	367	347	633	599	1 177	3 439	724
Other income	231	208	356	290	193	258	147	123	176	196	218
Total	2 412	5 053	10 246	15 133	20 358	23 284	28 044	33 944	39 338	65 496	24 331
Direct benefits in cash											
Contributory											
Retirement pension	45	155	429	496	467	388	333	240	211	220	298
Job seeker's allowance (Contribution based)	120	78	41	34	28	32	22	12	5	12	38
Incapacity benefit	378	666	513	566	366	263	222	151	104	130	336
Widows' benefits	57	84	89	15	63	42	25	33	39	12	45
Statutory maternity pay / Allowance	3	6	15	23	16	21	35	45	28	58	25
Non-contributory											
Income support	1 391	1 363	775	440	175	133	70	30	16	5	440
Child benefit	669	565	513	465	434	339	272	275	216	181	393
Housing benefit	931	1 213	781	443	209	112	48	19	4	-	376
Job seeker's allowance (Income based)	297	160	75	81	48	15	12	1	4	8	70
Invalid care allowance	16	52	71	76	23	19	11	7	11	5	29
Attendance allowance	4	-	13	13	51	19	31	7	7	-	15
Disability living allowance	94	169	362	319	158	187	127	89	24	20	155
War pensions / War widows' pensions	3	3	-	2	29	49	59	3	-	10	16
Severe disablement allowance	26	49	43	71	16	15	7	4	4	-	24
Industrial injury disablement benefit	7	8	23	27	38	5	5	49	2	-	16
Student maintenance awards	234	46	208	67	89	75	41	70	53	18	90
Government training schemes	29	48	33	18	34	31	16	12	24	1	25
Family credit	165	297	185	97	41	29	9	1	2	-	83
Other non-contributory benefits	18	39	33	19	11	12	17	10	1	1	16
Total cash benefits	4 488	5 000	4 202	3 273	2 296	1 787	1 362	1 057	753	667	2 488
Gross income	6 900	10 053	14 448	18 406	22 654	25 072	29 406	35 000	40 090	66 163	26 819
Direct taxes and Employees' NIC											
Income tax	268	474	1 094	1 740	2 645	3 178	4 153	5 223	6 464	13 163	3 840
less: Tax relief at source[1]	59	60	93	139	169	193	228	263	277	310	179
Employees' NI contributions	121	262	566	877	1 264	1 379	1 694	2 028	2 198	2 398	1 279
Local taxes[2]	626	645	685	718	738	757	781	835	854	995	763
less: Council tax benefit / Rate rebates	240	224	129	81	44	37	30	13	15	24	84
Total	716	1 096	2 124	3 115	4 433	5 085	6 370	7 810	9 224	16 222	5 619
Disposable income	6 184	8 957	12 324	15 291	18 221	19 987	23 036	27 191	30 866	49 941	21 200
Equivalised disposable income	*5 194*	*8 182*	*10 370*	*12 448*	*14 587*	*17 024*	*19 701*	*23 242*	*28 526*	*48 614*	*18 789*
Indirect taxes											
Taxes on final goods and services											
VAT	849	922	1 269	1 533	1 707	1 712	2 026	2 453	2 354	3 143	1 797
Duty on tobacco	425	387	442	464	452	385	377	401	271	234	384
Duty on beer and cider	68	71	97	120	133	145	160	171	141	161	127
Duty on wines	14	10	20	28	24	34	45	58	60	108	40
Duty on spirits	40	50	58	54	60	87	95	113	88	98	74
Duty on hydrocarbon oils	195	208	315	379	441	474	490	593	549	582	423
Vehicle excise duty	59	57	95	113	142	150	158	185	172	170	130
Television licences	74	78	83	85	87	85	87	88	88	87	84
Stamp duty on house purchase	8	6	12	17	18	22	29	40	52	86	29
Customs duties	31	35	44	50	57	56	62	78	72	94	58
Betting taxes	31	43	56	66	63	74	90	102	54	88	67
Fossil fuel levy	3	4	4	4	4	4	4	4	4	4	4
Camelot National lottery fund	43	47	66	70	83	88	81	86	63	63	69
Other	25	30	35	54	49	50	58	74	94	92	56
Intermediate taxes											
Commercial and industrial rates	125	129	177	206	227	233	263	311	319	420	241
Employers' NI contributions	169	174	241	277	306	312	354	419	434	575	326
Duty on hydrocarbon oils	107	107	148	165	181	182	205	239	253	330	192
Vehicle excise duty	15	15	22	23	26	26	30	35	37	49	28
Other	84	87	119	138	152	156	174	208	211	275	160
Total indirect taxes	2 365	2 462	3 302	3 844	4 211	4 272	4 788	5 658	5 316	6 658	4 288
Post-tax income	3 819	6 495	9 023	11 447	14 009	15 715	18 248	21 532	25 551	43 283	16 912
Benefits in kind											
Education	3 192	2 010	2 278	1 776	1 727	1 229	1 114	1 056	794	534	1 571
National health service	1 460	1 459	1 519	1 569	1 582	1 409	1 396	1 345	1 187	1 178	1 411
Housing subsidy	97	126	80	53	37	27	17	13	6	2	46
Rail travel subsidy	29	20	33	29	29	46	50	64	83	143	53
Bus travel subsidy	15	14	21	20	20	17	16	10	9	7	15
School meals and welfare milk	160	78	38	14	12	5	0	2	3	2	31
Total	4 954	3 707	3 969	3 461	3 405	2 734	2 594	2 491	2 083	1 866	3 126
Final income	8 773	10 202	12 991	14 908	17 415	18 449	20 843	24 023	27 634	45 149	20 039

1 On mortgage interest and life assurance premiums.
2 Council tax, domestic rates and water charges after deducting discounts.

TABLE 3B (Appendix 1) : Household characteristics of decile groups of NON-RETIRED households, 1997-98

	Decile groups of non-retired households ranked by equivalised disposable income										All such households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (number)											
People	2.9	2.7	2.8	2.9	2.9	2.7	2.6	2.6	2.4	2.2	2.7
Adults	*1.7*	*1.7*	*1.9*	*2.0*	*2.1*	*2.0*	*2.1*	*2.1*	*1.9*	*1.9*	*1.9*
Men	*0.8*	*0.7*	*0.9*	*1.0*	*1.1*	*1.1*	*1.1*	*1.1*	*1.1*	*1.0*	*1.0*
Women	*0.9*	*0.9*	*1.0*	*1.0*	*1.1*	*1.0*	*1.0*	*1.0*	*0.9*	*0.8*	*1.0*
Children	*1.3*	*1.0*	*0.9*	*0.8*	*0.8*	*0.6*	*0.5*	*0.5*	*0.4*	*0.3*	*0.7*
Economically active people	0.8	0.9	1.3	1.5	1.8	1.8	1.9	2.0	1.8	1.7	1.5
Retired people	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1
People in full-time education	1.26	0.83	0.89	0.74	0.71	0.54	0.46	0.44	0.37	0.28	0.65
In state primary schools	*0.60*	*0.43*	*0.41*	*0.34*	*0.33*	*0.27*	*0.20*	*0.20*	*0.14*	*0.08*	*0.30*
In state secondary schools	*0.36*	*0.28*	*0.28*	*0.28*	*0.24*	*0.18*	*0.15*	*0.13*	*0.11*	*0.05*	*0.21*
In further and higher education	*0.26*	*0.10*	*0.17*	*0.10*	*0.10*	*0.07*	*0.08*	*0.08*	*0.06*	*0.06*	*0.11*
In other educational establishments	*0.03*	*0.03*	*0.03*	*0.02*	*0.03*	*0.02*	*0.02*	*0.03*	*0.05*	*0.09*	*0.04*
Composition (percentages)											
Household type											
Non-retired											
1 adult	24	24	18	13	15	20	18	18	25	26	20
1 adult men	*17*	*14*	*10*	*7*	*8*	*13*	*10*	*11*	*17*	*20*	*13*
1 adult women	*7*	*10*	*9*	*6*	*7*	*7*	*8*	*7*	*8*	*6*	*7*
2 adults	15	16	20	24	22	27	32	32	37	42	27
3 or more adults	4	5	11	15	14	17	18	18	13	10	12
1 adult with children	23	24	14	7	5	2	2	1	1	0	8
2 adults with 1 child	8	7	10	11	12	11	12	11	9	11	10
2 adults with 2 children	10	11	13	17	17	13	12	12	11	7	12
2 adults with 3 or more children	11	6	8	5	5	4	3	3	2	2	5
3 or more adults with children	5	6	6	7	10	5	4	5	2	2	5
Household tenure											
Rented	62	69	52	37	28	26	15	14	13	9	33
Local authority rented	*40*	*43*	*30*	*19*	*14*	*8*	*5*	*3*	*1*	*0*	*16*
Housing association	*4*	*10*	*7*	*4*	*3*	*4*	*1*	*1*	*1*	*0*	*4*
Other rented unfurnished	*4*	*7*	*8*	*6*	*5*	*4*	*3*	*3*	*3*	*2*	*5*
Rented furnished	*13*	*8*	*8*	*6*	*5*	*7*	*4*	*5*	*6*	*4*	*7*
Rent free	*1*	*0*	*0*	*2*	*1*	*3*	*2*	*1*	*2*	*2*	*1*
Owner occupied	38	31	48	63	72	74	85	86	87	91	67
With mortgage	*23*	*22*	*33*	*48*	*56*	*59*	*68*	*73*	*74*	*77*	*53*
Rental purchase	*-*	*0*	*1*	*0*	*1*	*-*	*0*	*1*	*-*	*-*	*0*
Owned outright	*14*	*9*	*14*	*15*	*15*	*15*	*16*	*12*	*13*	*14*	*14*
Age of chief economic supporter											
Under 25	14	9	7	5	5	4	4	3	1	0	5
Over 24 and under 35	27	24	25	22	27	22	24	30	31	27	26
Over 34 and under 45	26	25	25	28	24	26	24	26	26	28	26
Over 44 and under 55	20	21	20	22	25	27	28	26	28	30	25
Over 54 and under 65	11	19	16	17	14	17	17	13	13	13	15
Over 64 and under 75	1	2	3	5	5	3	3	1	2	2	3
Over 74	0	1	4	2	1	2	1	0	0	0	1
Employment status of chief economic supporter											
Self-employed	7	8	8	8	6	9	7	10	11	17	9
Full-time employee at work	8	17	40	54	70	70	78	79	80	78	57
Part-time employee at work	16	19	15	11	7	8	4	6	5	3	9
Unemployed	19	12	7	5	6	5	5	3	3	2	7
Unoccupied and under minimum NI age	48	41	24	17	7	5	5	1	1	1	15
Retired/unoccupied over minimum NI age	1	1	6	5	4	3	2	0	0	0	2
Other	2	1	0	0	-	-	-	-	-	-	0

TABLE 4A (Appendix 1) : Average incomes, taxes and benefits by decile groups of RETIRED households, 1997-98

	Decile groups of retired households ranked by equivalised disposable income										All such households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (£ per year)											
Decile points (equivalised £)	*6 324*	*7 646*	*8 562*	*9 415*	*10 346*	*11 744*	*13 282*	*15 659*	*20 387*		
Number of households in the population ('000s)	628	627	624	628	626	627	624	627	626	626	6 264
Original income											
Wages and salaries	3	46	72	62	89	221	407	217	771	660	255
Imputed income from benefits in kind	-	-	-	-	1	30	-	-	20	18	7
Self-employment income	45	-	-	13	-	20	30	-	7	25	14
Occupational pensions, annuities	274	765	1 001	1 242	1 514	2 326	3 442	4 746	7 606	16 190	3 911
Investment income	400	310	426	415	507	841	1 223	1 346	2 810	10 414	1 869
Other income	25	25	34	70	71	57	67	27	35	32	44
Total	748	1 147	1 533	1 801	2 183	3 496	5 169	6 336	11 249	27 338	6 100
Direct benefits in cash											
Contributory											
Retirement pension	3 550	4 437	4 277	4 355	4 151	4 263	4 310	4 222	4 198	4 058	4 182
Job seeker's allowance (Contribution based)	45	27	8	-	-	-	-	22	-	-	10
Incapacity benefit	41	57	178	93	78	230	243	204	108	227	146
Widows' benefits	-	31	-	-	61	21	-	24	50	45	23
Statutory maternity pay/ Allowance	2	-	-	-	-	-	-	-	-	-	0
Non-contributory											
Income support	151	151	151	242	179	303	333	422	525	111	257
Child benefit	3	4	-	-	-	-	3	3	-	-	1
Housing benefit	17	229	646	709	857	666	506	495	377	77	458
Job seeker's allowance (Income based)	10	10	26	-	-	-	-	12	6	-	6
Invalid care allowance	28	-	-	7	35	40	35	70	46	15	28
Attendance allowance	13	58	135	143	161	265	506	571	486	105	244
Disability living allowance	21	33	45	66	154	255	353	347	171	26	147
War pensions / War widows' pensions	-	10	16	52	11	62	149	288	152	57	80
Severe disablement allowance	-	-	-	24	-	26	54	56	62	22	24
Industrial injury disablement benefit	-	21	3	18	-	20	9	8	11	77	17
Student maintenance awards	-	19	24	-	-	27	33	-	-	-	10
Government training schemes	-	-	-	-	-	-	-	-	12	-	1
Family credit	-	-	-	-	-	-	-	-	-	-	-
Other non-contributory benefits	83	66	62	44	12	25	14	44	91	77	52
Total cash benefits	3 964	5 154	5 572	5 754	5 698	6 204	6 549	6 789	6 296	4 897	5 688
Gross income	4 710	6 300	7 105	7 555	7 881	9 699	11 717	13 125	17 545	32 235	11 787
Direct taxes and Employees' NIC											
Income tax	66	87	138	162	210	374	630	898	1 830	5 134	953
less: Tax relief at source[1]	8	11	10	16	9	8	14	13	18	20	13
Employees' NI contributions	5	1	1	1	4	11	25	9	35	38	13
Local taxes[2]	681	686	645	658	642	708	723	722	831	1 052	735
less: Council tax benefit / Rate rebates	210	147	171	161	161	118	128	118	103	16	133
Total	534	615	602	644	687	967	1 236	1 498	2 575	6 188	1 555
Disposable income	4 176	5 686	6 502	6 911	7 194	8 733	10 481	11 627	14 969	26 047	10 233
Equivalised disposable income	*5 482*	*6 995*	*8 103*	*9 007*	*9 830*	*10 997*	*12 426*	*14 447*	*17 678*	*30 469*	*12 543*
Indirect taxes											
Taxes on final goods and services											
VAT	484	526	538	498	585	776	850	892	1 491	1 905	854
Duty on tobacco	85	107	137	133	152	146	110	155	215	110	135
Duty on beer and cider	22	22	27	22	23	23	26	29	51	53	30
Duty on wines	7	10	10	9	6	14	24	26	37	76	22
Duty on spirits	46	37	33	49	28	44	40	85	87	114	56
Duty on hydrocarbon oils	84	96	96	77	88	129	159	166	256	310	146
Vehicle excise duty	40	51	43	48	51	61	77	87	122	162	74
Television licences	84	84	81	77	77	79	80	84	80	90	82
Stamp duty on house purchase	8	7	4	4	5	9	11	12	19	36	11
Customs duties	19	20	22	20	20	28	29	31	42	60	29
Betting taxes	30	37	42	37	29	47	55	52	42	41	41
Fossil fuel levy	3	3	2	3	3	3	3	3	4	4	3
Camelot National lottery fund	30	38	41	31	39	50	57	49	42	39	42
Other	14	14	13	21	18	27	24	26	93	103	35
Intermediate taxes											
Commercial and industrial rates	82	85	88	82	90	116	128	128	202	253	125
Employers' NI contributions	109	113	118	109	122	159	174	172	278	338	169
Duty on hydrocarbon oils	68	69	73	67	75	98	103	100	169	183	100
Vehicle excise duty	9	9	10	9	10	14	14	14	25	26	14
Other	54	57	60	55	61	78	84	83	125	160	81
Total indirect taxes	1 280	1 387	1 438	1 349	1 483	1 899	2 046	2 196	3 378	4 061	2 052
Post-tax income	2 897	4 299	5 064	5 561	5 712	6 834	8 435	9 431	11 591	21 986	8 181
Benefits in kind											
Education	-	104	-	-	-	82	127	-	-	52	37
National health service	2 730	2 692	2 434	2 659	2 323	2 413	2 448	2 570	2 640	2 369	2 528
Housing subsidy	17	41	91	81	85	72	60	57	29	4	54
Rail travel subsidy	10	4	3	-	8	10	30	8	27	38	14
Bus travel subsidy	64	65	65	57	66	63	58	54	40	39	57
School meals and welfare milk	-	-	-	-	-	-	-	-	-	-	-
Total	2 822	2 906	2 593	2 797	2 482	2 640	2 722	2 690	2 737	2 502	2 689
Final income	5 718	7 205	7 657	8 358	8 194	9 474	11 157	12 121	14 328	24 487	10 870

1 On mortgage interest and life assurance premiums.
2 Council tax, domestic rates and water charges after deducting discounts.

TABLE 4B (Appendix 1) : Household characteristics of decile groups of RETIRED households, 1997-98

	Decile groups of retired households ranked by equivalised disposable income										All such households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (number)											
People	1.4	1.5	1.5	1.4	1.3	1.5	1.6	1.5	1.6	1.6	1.5
Adults	*1.39*	*1.49*	*1.49*	*1.40*	*1.30*	*1.45*	*1.58*	*1.49*	*1.58*	*1.61*	*1.48*
Men	*0.50*	*0.59*	*0.58*	*0.50*	*0.47*	*0.60*	*0.66*	*0.64*	*0.65*	*0.80*	*0.60*
Women	*0.89*	*0.90*	*0.91*	*0.89*	*0.84*	*0.86*	*0.92*	*0.85*	*0.93*	*0.81*	*0.88*
Children	*0.01*	*0.02*	-	-	-	*0.00*	*0.01*	*0.01*	*0.00*	*0.01*	*0.00*
Economically active people	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1
Retired people	1.3	1.4	1.4	1.3	1.3	1.3	1.5	1.4	1.4	1.5	1.4
People in full-time education	-	0.02	-	-	-	0.02	0.03	0.01	-	0.01	0.01
Composition (percentages)											
Household type											
Retired											
1 adult	64	53	55	61	71	59	50	54	47	41	56
1 adult men	*13*	*10*	*12*	*12*	*19*	*17*	*15*	*16*	*13*	*21*	*15*
1 adult women	*51*	*43*	*42*	*50*	*51*	*42*	*35*	*38*	*34*	*19*	*41*
2 or more adults	36	47	45	39	29	41	50	46	53	59	44
Household tenure											
Rented	15	32	57	55	57	45	35	32	24	3	36
Local authority rented	*8*	*21*	*46*	*40*	*32*	*25*	*22*	*20*	*15*	*1*	*23*
Housing association	*3*	*4*	*5*	*7*	*15*	*12*	*9*	*7*	*5*	*0*	*7*
Other rented unfurnished	*3*	*5*	*4*	*4*	*7*	*4*	*1*	*2*	*3*	*0*	*3*
Rented furnished	*0*	*0*	*0*	*0*	*1*	*0*	*2*	*1*	*0*	*1*	*0*
Rent free	-	*2*	*3*	*4*	*3*	*5*	*1*	*1*	*1*	*1*	*2*
Owner occupied	85	68	43	45	43	55	65	68	76	97	64
With mortgage	*5*	*5*	*6*	*7*	*4*	*4*	*8*	*10*	*6*	*7*	*6*
Rental purchase	-	-	-	-	-	-	-	-	-	-	-
Owned outright	*81*	*63*	*36*	*37*	*39*	*50*	*57*	*58*	*70*	*91*	*58*
Age of chief economic supporter											
Under 25	-	-	-	-	-	-	-	-	-	-	-
Over 24 and under 35	-	-	-	-	-	-	-	-	-	-	-
Over 34 and under 45	1	-	1	-	-	-	-	-	0	1	0
Over 44 and under 55	1	1	-	-	-	-	2	1	1	2	1
Over 54 and under 65	9	8	9	8	10	9	8	12	19	21	11
Over 64 and under 75	30	38	53	42	46	51	50	46	41	46	44
Over 74	60	54	38	51	43	40	40	42	40	30	44
Employment status of chief economic supporter											
Self-employed	2	-	-	-	-	-	-	-	-	-	0
Full-time employee at work	-	-	-	-	-	-	-	-	0	-	0
Part-time employee at work	-	-	-	-	-	0	-	-	-	-	0
Unemployed	-	-	-	1	-	-	-	-	-	-	0
Unoccupied and under minimum NI age	5	3	5	2	3	2	7	9	13	19	7
Retired/unoccupied over minimum NI age	94	97	95	98	97	97	93	91	86	81	93

TABLE 5 (Appendix 1) : Average incomes, taxes and benefits by decile groups of NON-RETIRED households WITHOUT CHILDREN, 1997-98

	Decile groups of non-retired households without children, ranked by equivalised disposable income										All such households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (£ per year)											
Decile points (equivalised £)	*7 989*	*10 695*	*13 045*	*15 578*	*17 912*	*20 369*	*23 780*	*28 371*	*36 355*		
Number of households in the population ('000s)	1 088	1 090	1 088	1 091	1 085	1 092	1 087	1 086	1 087	1 091	10 884
Original income											
Wages and salaries	1 488	4 074	8 056	13 733	16 452	21 035	24 500	28 347	30 377	49 904	19 797
Imputed income from benefits in kind	15	48	36	80	118	189	323	444	702	1 702	366
Self-employment income	251	474	1 081	942	1 407	1 390	1 923	2 160	4 273	8 802	2 270
Occupational pensions, annuities	138	330	671	851	977	1 125	1 089	1 449	1 565	1 991	1 018
Investment income	186	202	329	324	332	641	605	857	1 108	3 271	785
Other income	252	263	131	250	124	100	133	58	95	210	161
Total	2 330	5 392	10 306	16 180	19 410	24 481	28 574	33 314	38 119	65 880	24 399
Direct benefits in cash											
Contributory											
Retirement pension	78	574	859	882	570	505	346	276	292	256	464
Job seeker's allowance (Contribution based)	103	94	32	20	28	28	13	11	10	11	35
Incapacity benefit	742	1 007	932	534	347	309	220	144	102	136	447
Widows' benefits	70	120	54	55	50	35	48	44	21	-	50
Statutory Maternity Pay/ Allowance	-	-	-	-	-	-	4	-	-	-	0
Non-contributory											
Income support	683	688	605	226	129	115	23	45	1	9	252
Child benefit	8	8	10	12	3	2	-	3	-	9	5
Housing benefit	775	906	598	276	136	68	46	5	7	-	282
Job seeker's allowance (income based)	306	147	129	73	21	18	6	-	6	-	71
Invalid care allowance	38	29	80	8	26	6	-	12	-	-	20
Attendance allowance	-	7	31	53	25	38	6	16	-	-	18
Disability living allowance	66	354	458	122	212	194	97	44	21	-	157
War pensions / War widows' pensions	-	4	-	37	87	92	16	-	-	16	25
Severe disablement allowance	33	87	78	51	17	12	-	13	-	-	29
Industrial injury disablement benefit	-	8	44	23	9	6	76	5	-	-	17
Student maintenance awards	351	207	174	105	74	45	74	82	26	17	116
Government training schemes	58	47	15	47	49	21	17	1	41	0	30
Family credit	-	0	3	10	-	29	-	-	-	-	4
Other non-contributory benefits	11	22	29	15	9	39	8	1	1	1	14
Total cash benefits	3 324	4 310	4 131	2 551	1 792	1 562	1 000	705	529	455	2 036
Gross income	5 654	9 702	14 437	18 731	21 202	26 043	29 574	34 019	38 648	66 335	26 434
Direct taxes and Employees' NIC											
Income tax	325	432	1 099	2 011	2 578	3 413	4 046	5 087	6 089	13 248	3 833
less: Tax relief at source[1]	43	39	62	80	126	171	190	237	264	306	152
Employees' NI contributions	107	253	549	944	1 158	1 525	1 778	2 060	2 130	2 470	1 297
Local taxes[2]	569	625	682	687	693	726	754	794	823	965	732
less: Council tax benefit / Rate rebates	207	160	119	64	41	38	15	15	13	27	70
Total	750	1 111	2 149	3 498	4 262	5 455	6 373	7 688	8 764	16 349	5 640
Disposable income	4 904	8 592	12 288	15 234	16 940	20 588	23 200	26 331	29 883	49 985	20 794
Equivalised disposable income	*5 589*	*9 375*	*11 802*	*14 315*	*16 695*	*19 167*	*22 045*	*25 628*	*31 595*	*53 486*	*20 969*
Indirect taxes											
Taxes on final goods and services											
VAT	739	862	1 224	1 404	1 430	1 825	2 221	2 212	2 319	3 072	1 731
Duty on tobacco	309	390	438	476	398	451	409	377	281	216	375
Duty on beer and cider	105	94	134	129	139	185	202	157	163	158	147
Duty on wines	14	15	22	20	26	39	58	56	66	119	43
Duty on spirits	63	61	60	64	85	103	128	122	85	108	88
Duty on hydrocarbon oils	161	181	305	346	395	431	549	521	542	539	397
Vehicle excise duty	54	58	89	120	137	152	181	169	177	160	130
Television licences	68	79	81	83	81	85	87	88	88	85	82
Stamp duty on house purchase	7	7	10	10	12	18	26	39	48	90	26
Customs duties	23	26	39	46	44	53	65	64	70	90	52
Betting taxes	33	51	77	64	82	111	123	65	106	60	77
Fossil fuel levy	3	3	3	3	3	4	4	4	4	4	3
Camelot National lottery fund	36	49	74	83	94	92	85	82	73	60	73
Other	24	21	58	40	38	55	59	100	67	98	56
Intermediate taxes											
Commercial and industrial rates	105	121	166	183	191	235	265	279	293	401	224
Employers' NI contributions	139	165	226	247	256	317	353	376	395	553	303
Duty on hydrocarbon oils	88	104	139	145	149	192	197	218	221	328	178
Vehicle excise duty	13	15	20	21	22	28	28	32	32	50	26
Other	70	81	111	123	128	155	176	185	196	262	149
Total indirect taxes	2 054	2 384	3 276	3 607	3 711	4 529	5 216	5 144	5 225	6 452	4 160
Post-tax income	2 850	6 207	9 012	11 627	13 229	16 059	17 985	21 187	24 658	43 534	16 635
Benefits in kind											
Education	1 598	761	594	464	151	265	260	256	145	196	469
National health service	810	1 046	1 284	1 269	1 103	1 168	1 030	1 019	896	929	1 056
Housing subsidy	67	99	59	53	36	29	18	10	2	-	37
Rail travel subsidy	52	29	32	28	49	58	54	84	59	167	61
Bus travel subsidy	12	23	27	24	19	20	12	10	7	6	16
School meals and welfare milk	1	0	-	-	1	-	-	-	-	-	0
Total	2 541	1 958	1 997	1 839	1 358	1 539	1 375	1 379	1 109	1 298	1 639
Final income	5 391	8 166	11 008	13 466	14 587	17 598	19 359	22 566	25 768	44 832	18 274

1 On mortgage interest and life assurance premiums.
2 Council tax, domestic rates and water charges after deducting discounts.

TABLE 6 (Appendix 1) : Average incomes, taxes and benefits by decile groups of NON-RETIRED households with CHILDREN, 1997-98

	Decile groups of non-retired households with children ranked by equivalised disposable income										All such households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (£ per year)											
Decile points (equivalised £)	*6 321*	*7 897*	*9 736*	*11 360*	*13 222*	*14 862*	*17 533*	*21 209*	*26 628*		
Number of households in the population ('000s)	741	742	741	738	741	742	738	740	742	742	7 408
Original income											
Wages and salaries	1 405	3 178	7 294	10 552	16 062	20 433	23 746	28 698	36 341	50 985	19 869
Imputed income from benefits in kind	12	9		49	148	166	303	769	924	1 919	430
Self-employment income	652	508	1 020	1 545	1 684	1 479	2 196	2 789	3 848	12 026	2 775
Occupational pensions, annuities		40	105	153	316	291	335	320	345	330	223
Investment income	113	57	90	74	134	438	411	402	740	3 875	633
Other income	212	318	249	317	378	227	354	387	308	252	300
Total	2 394	4 111	8 758	12 690	18 722	23 033	27 346	33 365	42 506	69 387	24 231
Direct benefits in cash											
Contributory											
Retirement pension	11	48	65	91	78	76	46	103	-	36	55
Job seeker's allowance (Contribution based)	151	74	16	50	34	47	22	27	7	5	43
Incapacity benefit	215	254	177	215	213	248	123	133	61	88	172
Widows' benefits	40	90	22	74		48	59	-	38	-	37
Statutory Maternity Pay/ Allowance	5	8	13	34	45	44	57	93	132	186	62
Non-contributory											
Income support	1 854	2 216	1 440	883	296	236	145	57	4	16	715
Child benefit	1 198	1 062	1 030	996	977	887	900	899	863	811	962
Housing benefit	1 048	1 423	1 022	920	348	269	102	12	-	-	514
Job seeker's allowance (income based)	298	208	45	36	40	41	-	4	-	19	69
Invalid care allowance	7	27	95	58	97	54	22	26	17	19	42
Attendance allowance	9		10			33	15	31	-	-	10
Disability living allowance	126	143	141	350	213	177	138	95	64	71	152
War pensions / War widows' pensions	-	7				-	-	-	6	-	1
Severe disablement allowance	31	17	29	23	32	11	-	12		-	15
Industrial injury disablement benefit	-	22	8	39	15	21	39	-	5	4	15
Student maintenance awards	43	74	18	121	19	24	105	65	38	17	53
Government training schemes	14	25	38	40	6	17	16	9	5	3	17
Family credit	269	401	597	331	215	99	35	19	5	5	198
Other non-contributory benefits	26	24	46	73	3	10	1	1	12	0	20
Total cash benefits	5 345	6 121	4 814	4 337	2 630	2 342	1 825	1 585	1 255	1 281	3 153
Gross income	7 739	10 232	13 571	17 027	21 352	25 375	29 171	34 950	43 761	70 668	27 385
Direct taxes and Employees' NIC											
Income tax	188	424	906	1 426	2 231	2 988	3 861	5 083	7 273	14 132	3 851
less: Tax relief at source[1]	74	56	103	139	215	256	283	330	379	354	219
Employees' NI contributions	116	215	507	743	1 142	1 465	1 632	1 923	2 364	2 404	1 251
Local taxes[2]	685	662	687	720	746	803	829	873	971	1 121	810
less: Council tax benefit / Rate rebates	279	284	163	132	52	44	35	16	11	23	104
Total	636	961	1 835	2 619	3 853	4 955	6 004	7 532	10 217	17 280	5 589
Disposable income	7 103	9 271	11 736	14 408	17 499	20 420	23 167	27 418	33 544	53 389	21 795
Equivalised disposable income	*4 970*	*7 208*	*8 743*	*10 501*	*12 344*	*14 072*	*16 104*	*19 235*	*23 516*	*39 158*	*15 585*
Indirect taxes											
Taxes on final goods and services											
VAT	958	909	1 216	1 477	1 853	1 957	2 081	2 312	2 806	3 367	1 894
Duty on tobacco	504	488	466	419	429	490	382	325	259	214	398
Duty on beer and cider	35	48	75	74	94	117	157	121	127	128	97
Duty on wines	13	9	14	22	29	31	36	48	64	86	35
Duty on spirits	31	28	46	55	45	54	84	79	58	65	55
Duty on hydrocarbon oils	213	223	320	371	467	477	584	592	701	655	460
Vehicle excise duty	67	53	81	109	137	148	168	165	190	188	131
Television licences	79	81	84	85	88	89	90	89	89	91	87
Stamp duty on house purchase	10	5	11	14	25	24	36	44	62	93	32
Customs duties	38	38	46	57	63	67	70	78	99	108	66
Betting taxes	32	39	48	47	56	59	58	61	66	47	51
Fossil fuel levy	4	4	4	4	4	4	4	4	5	5	4
Camelot National lottery fund	49	51	56	60	76	78	78	67	70	49	64
Other	32	33	38	33	38	71	61	66	88	100	56
Intermediate taxes											
Commercial and industrial rates	141	133	173	205	250	266	285	315	390	501	266
Employers' NI contributions	193	179	235	278	336	360	380	425	532	689	361
Duty on hydrocarbon oils	123	113	145	165	194	217	215	242	307	396	212
Vehicle excise duty	17	16	21	24	27	31	31	35	45	59	30
Other	95	91	117	138	167	178	189	212	260	327	177
Total indirect taxes	2 634	2 541	3 194	3 637	4 377	4 719	4 989	5 280	6 219	7 166	4 476
Post-tax income	4 469	6 731	8 542	10 771	13 122	15 700	18 178	22 138	27 325	46 222	17 320
Benefits in kind											
Education	4 211	3 617	3 289	3 485	3 250	3 015	3 156	3 006	2 892	1 977	3 190
National health service	2 009	1 832	1 932	1 819	1 911	1 985	1 904	1 939	1 961	2 027	1 932
Housing subsidy	130	151	102	88	39	40	13	6	0	8	58
Rail travel subsidy	16	12	12	23	34	23	32	41	77	132	40
Bus travel subsidy	19	17	12	15	12	19	12	11	13	8	14
School meals and welfare milk	285	207	101	85	29	25	20	6	1	14	77
Total	6 668	5 837	5 448	5 516	5 276	5 108	5 137	5 010	4 945	4 165	5 311
Final income	11 137	12 567	13 990	16 287	18 398	20 808	23 315	27 148	32 270	50 388	22 631

1 On mortgage interest and life assurance premiums.
2 Council tax, domestic rates and water charges after deducting discounts.

TABLE 7 (Appendix 1) : Distribution of households[1] by household type, 1997-98

	Retired households				Non-Retired households		
	1 adult Men	1 adult Women	All 1 adult	2 or more adults	1 adult Men	1 adult Women	All 1 adult
Decile groups of households ranked by equivalised disposable income							
Number of households ('000s)							
Bottom	89	460	549	292	285	112	397
2nd	132	379	511	491	195	107	302
3rd	173	599	771	404	158	149	307
4th	160	346	506	330	162	126	288
5th	86	241	327	386	95	114	209
6th	88	241	329	261	166	143	309
7th	59	142	200	176	277	136	413
8th	44	70	113	183	203	183	386
9th	55	38	92	132	340	130	470
Top	44	34	77	132	456	156	612
All households in population ('000s)	928	2 548	3 477	2 787	2 337	1 356	3 692

	Non-Retired households							
	2 adults	3 or more adults	1 adult with children	2 adults with 1 child	2 adults with 2 children	2 adults with 3 or more children	3 or more adults with children	All house-holds
Decile groups of households ranked by equivalised disposable income								
Number of households ('000s)								
Bottom	243	59	350	141	150	186	88	2 456
2nd	198	63	403	99	193	107	86	2 453
3rd	264	93	229	98	144	82	71	2 457
4th	345	246	178	166	184	110	108	2 461
5th	447	227	112	227	323	76	118	2 452
6th	419	302	73	216	308	88	152	2 457
7th	596	353	55	202	266	100	90	2 453
8th	664	376	13	293	255	48	126	2 458
9th	797	341	33	215	267	49	58	2 455
Top	936	221	6	233	159	36	41	2 453
All households in population ('000s)	4 909	2 283	1 453	1 887	2 249	882	937	24 556

1 See Appendix 3 for definitions of retired households, adults and children.

TABLE 8 (Appendix 1) : Summary of the effects of taxes and benefits, by household type[1], 1997-98

	Retired households				Non-Retired households		
	1 adult Men	1 adult Women	All 1 adult	2 or more adults	1 adult Men	1 adult Women	All 1 adult
Average per household (£ per year)							
Original income	5 006	2 568	3 219	9 693	15 030	11 662	13 793
plus Cash benefits	4 690	4 992	4 911	6 656	1 695	2 015	1 812
Gross income	9 696	7 560	8 130	16 349	16 725	13 677	15 605
less Direct taxes and employees' NIC	1 349	870	998	2 249	3 731	2 890	3 422
Disposable income	8 347	6 690	7 132	14 100	12 993	10 787	12 183
Equivalised disposable income	*13 684*	*10 953*	*11 682*	*13 618*	*21 301*	*17 683*	*19 972*
less Indirect taxes	1 640	1 093	1 239	3 065	2 603	2 073	2 408
Post-tax income	6 707	5 596	5 893	11 035	10 390	8 714	9 775
plus Benefits in kind	1 930	2 363	2 247	3 240	762	831	787
Final income	8 637	7 959	8 140	14 275	11 152	9 545	10 562

	Non-Retired households							
	2 adults	3 or more adults	1 adult with children	2 adults with 1 child	2 adults with 2 children	2 adults with 3 or more children	3 or more adults with children	All house-holds
Average per household (£ per year)								
Original income	27 241	35 439	4 943	28 337	30 047	24 437	31 721	19 680
plus Cash benefits	1 868	2 758	5 515	1 982	2 018	4 058	3 724	3 304
Gross income	29 109	38 198	10 457	30 319	32 064	28 495	35 445	22 985
less Direct taxes and employees' NIC	6 410	7 570	1 049	6 674	7 130	5 487	6 842	4 583
Disposable income	22 699	30 628	9 408	23 646	24 934	23 007	28 604	18 402
Equivalised disposable income	*22 179*	*19 981*	*9 578*	*19 383*	*17 295*	*13 255*	*15 343*	*17 196*
less Indirect taxes	4 429	6 414	2 243	4 657	4 714	4 599	6 883	3 717
Post-tax income	18 270	24 214	7 164	18 989	20 219	18 409	21 721	14 685
plus Benefits in kind	1 414	3 501	4 981	3 362	5 240	8 592	6 829	3 015
Final income	19 684	27 715	12 145	22 351	25 459	27 001	28 550	17 700

1 See Appendix,3 for definitions of retired households, adults and children.

TABLE 9 (Appendix 1) : Average incomes, taxes and benefits by decile groups of households (ranked by UNADJUSTED disposable income), 1997-98

	Decile groups of households ranked by UNADJUSTED disposable income										All households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Average per household (£ per year)											
Decile points (£ per year)	*5 461*	*7 180*	*9 305*	*11 731*	*14 680*	*17 953*	*21 649*	*26 826*	*35 070*		
Number of households in the population ('000s)	2 455	2 452	2 460	2 456	2 454	2 457	2 457	2 457	2 453	2 454	24 556
Original income											
Wages and salaries	329	875	1 950	4 840	8 050	12 570	17 757	23 395	30 425	48 148	14 834
Imputed income from benefits in kind	3	11	8	29	37	152	196	367	595	1 539	294
Self-employment income	155	91	231	456	865	1 254	1 244	2 043	2 778	9 353	1 847
Occupational pensions, annuities	265	656	1 022	1 267	1 828	1 845	1 798	1 773	2 163	2 549	1 516
Investment income	207	290	358	530	705	891	848	1 058	1 418	3 856	1 016
Other income	69	113	96	193	209	190	260	211	220	174	173
Total	1 028	2 035	3 666	7 315	11 693	16 903	22 101	28 847	37 597	65 619	19 680
Direct benefits in cash											
Contributory											
Retirement pension	1 812	2 168	2 319	1 630	1 449	1 209	868	533	527	376	1 289
Job seeker's allowance (Contribution based)	38	40	57	39	26	26	30	20	17	19	31
Incapacity benefit	285	228	387	386	436	354	296	214	169	120	288
Widows' benefits	35	54	68	37	52	61	48	12	13	11	39
Statutory maternity pay/ Allowance	1	1	4	5	9	39	20	19	39	51	19
Non-contributory											
Income support	426	804	816	733	476	253	198	118	77	30	393
Child benefit	73	186	244	301	303	340	365	389	357	371	293
Housing benefit	619	1 006	930	681	334	217	80	66	35	-	397
Job seeker's allowance (Income based)	122	55	82	84	66	49	48	13	12	7	54
Invalid care allowance	-	18	10	55	63	51	32	25	13	19	29
Attendance allowance	24	49	180	189	83	61	76	30	16	23	73
Disability living allowance	38	87	159	242	351	237	160	139	72	42	153
War pensions / War widows' pensions	2	10	60	52	82	33	41	20	11	10	32
Severe disablement allowance	13	9	23	39	64	13	36	31	3	6	24
Industrial injury disablement benefit	4	6	8	26	17	8	42	36	12	6	17
Student maintenance awards	51	53	57	123	32	79	81	65	81	74	70
Government training schemes	14	9	16	11	11	17	32	16	55	7	19
Family credit	9	29	89	183	130	79	45	24	24	2	64
Other non-contributory benefits	18	31	37	34	36	9	51	5	19	10	25
Total cash benefits	3 586	4 844	5 547	4 851	4 021	3 133	2 549	1 778	1 551	1 185	3 304
Gross income	4 614	6 879	9 213	12 166	15 713	20 036	24 650	30 625	39 149	66 803	22 985
Direct taxes and Employees' NIC											
Income tax	143	190	393	894	1 472	2 239	3 101	4 224	5 883	12 496	3 104
less: Tax relief at source[1]	26	23	28	63	101	148	185	241	259	291	137
Employees' NI contributions	34	55	129	336	566	891	1 255	1 646	2 050	2 597	956
Local taxes[2]	576	603	643	672	731	752	782	845	891	1 066	756
less: Council tax benefit / Rate rebates	194	203	178	133	89	59	47	28	13	20	96
Total	534	623	959	1 706	2 579	3 675	4 906	6 445	8 552	15 848	4 583
Disposable income	4 080	6 256	8 254	10 460	13 135	16 361	19 745	24 180	30 597	50 956	18 402
Indirect taxes											
Taxes on final goods and services											
VAT	469	554	729	992	1 210	1 596	1 780	2 150	2 589	3 494	1 556
Duty on tobacco	186	247	269	314	303	400	416	377	362	331	320
Duty on beer and cider	36	39	40	63	86	105	132	155	170	193	102
Duty on wines	7	9	14	15	26	33	34	50	62	104	35
Duty on spirits	32	31	47	52	62	79	77	91	111	115	70
Duty on hydrocarbon oils	76	99	155	225	283	393	426	529	614	719	352
Vehicle excise duty	34	40	61	79	98	127	144	169	194	213	116
Television licences	73	75	78	80	87	87	88	88	89	89	83
Stamp duty on house purchase	5	6	6	10	14	21	22	38	47	75	24
Customs duties	17	20	27	34	41	49	57	69	82	109	50
Betting taxes	24	33	37	50	74	64	94	71	78	78	60
Fossil fuel levy	3	3	3	3	3	4	4	4	4	5	4
Camelot National lottery fund	27	36	40	52	64	75	80	81	86	80	62
Other	16	18	22	23	35	43	81	80	79	110	51
Intermediate taxes											
Commercial and industrial rates	73	87	109	142	169	216	240	282	334	463	211
Employers' NI contributions	98	117	147	192	227	292	326	378	452	634	286
Duty on hydrocarbon oils	60	74	91	117	133	173	197	216	259	365	168
Vehicle excise duty	8	10	13	17	19	25	29	31	38	54	24
Other	50	58	73	95	113	142	160	188	221	302	140
Total indirect taxes	1 295	1 556	1 961	2 555	3 046	3 923	4 386	5 047	5 870	7 533	3 717
Post-tax income	2 786	4 701	6 293	7 905	10 089	12 438	15 358	19 132	24 727	43 423	14 685
Benefits in kind											
Education	510	608	829	1 294	1 246	1 227	1 513	1 404	1 690	1 474	1 180
National health service	1 517	1 793	1 966	1 709	1 671	1 769	1 685	1 545	1 640	1 659	1 696
Housing subsidy	59	100	101	70	46	35	37	16	10	2	48
Rail travel subsidy	14	12	10	25	24	38	40	50	77	136	43
Bus travel subsidy	30	40	37	30	28	26	21	16	17	12	26
School meals and welfare milk	14	41	47	57	31	14	11	10	2	7	23
Total	2 145	2 593	2 992	3 186	3 046	3 110	3 308	3 041	3 435	3 291	3 015
Final income	4 931	7 294	9 285	11 091	13 135	15 548	18 666	22 173	28 162	46 713	17 700

1 On mortgage interest and life assurance premiums.
2 Council tax, domestic rates and water charges after deducting discounts.

TABLE 10 (Appendix 1) : Cross-tabulation of households ranked by disposable income, unadjusted and equivalised, 1997-98

(I) Quintile groups

	Quintile groups of **equivalised** disposable income					All households
	Bottom	2nd	3rd	4th	Top	
Number of households in the population ('000s)						
Quintile groups of **unadjusted** disposable income						
Bottom	3 074	1 833	-	-	-	4 907
2nd	1 506	1 573	1 236	601	-	4 916
3rd	301	1 196	2 051	862	501	4 911
4th	28	303	1 419	2 110	1 054	4 914
Top	-	13	203	1 333	3 357	4 907
All households	4 909	4 919	4 910	4 907	4 912	24 556

(II) Decile groups

	Decile groups of **equivalised** disposable income										All households
	Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Number of households in the population ('000s)											
Decile groups of **unadjusted** disposable income											
Bottom	1 333	819	303	-	-	-	-	-	-	-	2 455
2nd	580	343	799	730	-	-	-	-	-	-	2 452
3rd	282	716	430	125	555	352	-	-	-	-	2 460
4th	176	332	461	556	35	294	601	-	-	-	2 456
5th	74	168	271	355	821	191	24	499	51	-	2 454
6th	11	48	107	463	419	620	336	3	450	-	2 457
7th	-	25	68	170	440	420	585	436	74	240	2 457
8th	-	3	7	59	123	437	487	603	509	230	2 457
9th	-	-	10	3	55	144	378	657	752	455	2 453
Top	-	-	-	-	5	-	41	261	619	1 528	2 454
All households	2 456	2 453	2 457	2 461	2 452	2 457	2 453	2 458	2 455	2 453	24 556

APPENDIX 2

Trends in income distribution, 1977 to 1997-98

CONTENTS

	Table
Percentage shares of original, gross, disposable and post-tax income by quintile group of households, 1977 to1997-98	1
Gini coefficients for the distribution of income at each stage of the tax-benefit system, 1977 to1997-98	2

This section gives Gini coefficients and shares of income for 1977 to 1997-98. As was noted in the main article, it is not possible to produce a fully consistent time series because of changes in methodology and definition. Many of these changes, like the inclusion of the income from company cars since 1990, improve the quality of the results but previous data cannot be reproduced on the same consistent basis. However, Gini coefficients and shares of income are relatively robust and can be used to shed light on broad trends in income distribution. The Department of Social Security publication, Households Below Average Income 1979 - 1996/97, contains more detailed data for comparison of incomes over time.

TABLE 1 (Appendix 2) : Percentage shares of total original, gross, disposable and post-tax incomes by quintile groups of households[1], 1977 to 1997-98

	1977	1978	1980	1982	1984	1986	1988	1990	1992[2]	1993-4[2]	1995-6[2]	1996-7[2]	1997-8[2]
Equivalised original income													
Quintile group													
Bottom	4	3	2	3	3	3	2	2	2	2	3	2	2
2nd	10	10	9	8	7	7	7	7	6	6	7	7	7
3rd	18	18	18	17	17	16	16	15	15	14	15	15	15
4th	26	26	26	26	26	26	26	25	26	25	25	25	25
Top	43	43	44	46	47	49	50	51	50	52	50	51	51
All households	100	100	100	100	100	100	100	100	100	100	100	100	100
Equivalised gross income													
Quintile group													
Bottom	9	9	8	9	9	8	7	7	7	7	7	7	7
2nd	13	13	12	12	12	11	11	10	11	11	11	11	11
3rd	18	18	18	17	17	16	16	16	16	16	16	16	16
4th	24	23	23	23	23	23	23	23	23	23	23	23	23
Top	37	37	38	39	39	41	43	44	43	44	43	44	44
All households	100	100	100	100	100	100	100	100	100	100	100	100	100
Equivalised disposable income													
Quintile group													
Bottom	10	10	9	9	10	9	8	7	7	8	8	8	8
2nd	14	14	13	13	13	12	11	11	11	12	12	12	12
3rd	18	18	18	17	17	17	16	16	16	16	17	16	16
4th	23	23	23	23	23	23	23	23	23	23	23	23	23
Top	36	35	37	37	37	40	42	43	42	42	40	42	42
All households	100	100	100	100	100	100	100	100	100	100	100	100	100
Equivalised post-tax income													
Quintile group													
Bottom	9	10	9	9	9	8	7	6	7	7	7	7	7
2nd	14	14	13	13	13	12	11	10	11	11	12	11	11
3rd	17	18	17	17	17	16	16	15	16	16	16	16	16
4th	23	23	23	22	22	22	22	23	23	22	23	22	22
Top	37	36	38	39	38	41	44	45	44	44	43	44	44
All households	100	100	100	100	100	100	100	100	100	100	100	100	100

1 Ranked by equivalised disposable income.
2 Includes Company car benefit and beneficial house purchase loans from employers. From 1996-7 values are based on estimates for the sample grossed up to population totals.

TABLE 2 (Appendix 2) : Gini coefficients for the distribution of income at each stage of the tax-benefit system, 1977 to 1997-98

	1977	1978	1980	1982	1984	1986	1988	1990	1992[1]	1993-4[1]	1995-6[1]	1996-7[1]	1997-8[1]
Gini coefficients (per cent)													
Equivalised original income	43	43	44	47	49	50	51	52	52	54	52	53	53
Equivalised gross income	29	29	31	31	31	34	37	38	37	37	36	37	38
Equivalised disposable income	27	26	28	28	28	31	35	36	34	34	33	34	34
Equivalised post-tax income	29	28	30	31	30	35	38	40	38	38	37	38	38

1 Includes Company car benefit and beneficial house purchase loans from employers. From 1996-7 values are based on estimates for the sample grossed up to population totals.

APPENDIX 3

METHODOLOGY AND DEFINITIONS

The allocation of government expenditure and its financing

1. There are considerable difficulties in moving from the aggregates of government expenditure and financing published in the United Kingdom National Accounts - the ONS Blue Book - to apportioning taxes and benefits to individual households. We can obtain information about the types of household that receive cash benefits and pay direct taxes through surveys such as the Family Expenditure Survey (FES). From the replies respondents give to questions on their expenditure we can impute their payments of indirect taxes, and from information they supply about such factors as their ages and number of children in the household we can estimate the average costs of providing them with social services, such as health and education. But there are other kinds of financing, such as corporation tax and government borrowing: no attempt is made in this analysis to apportion them to households because it would be too difficult. Similarly, there are other items of government expenditure, such as capital expenditure and expenditure on defence and on the maintenance of law and order, for which there is no clear conceptual basis for allocation, or for which we do not in any event have sufficient information to make an allocation.

Family Expenditure Survey (FES)

2. The estimates in this article are based mainly on data derived from the FES. The FES is an annual survey of the expenditure and income of private households. People living in hotels, lodging houses, and in institutions such as old peoples' homes are excluded. Each person aged 16 and over keeps a full record of payments made during 14 consecutive days and answers questions about hire purchase and other payments. The respondents also give detailed information, where appropriate, about income (including cash benefits received from the state) and payments of income tax and national insurance contributions. Information on age, occupation, education received, family composition and housing tenure is also obtained. The survey covers the whole 12 month period.

3. One of the main purposes of the FES is to produce information on household expenditure patterns which is used to derive the weights for the index of retail prices. The fieldwork is undertaken by the Social Survey Division of ONS and by the Northern Ireland Statistics and Research Agency. *Family Spending 1997-98,* published by The Stationery Office in November 1998, shows detailed results on expenditure and income from the 1997-98 survey, and how they vary with household characteristics. The report also includes an outline of the survey design.

4. The number of households in the United Kingdom responding to the FES in 1997-98 was 6,409 (about 1 in every 3,000 households). The response rate in Great Britain was 62 per cent: the FES in Northern Ireland is done as a separate exercise to the rest of UK, with a larger sampling fraction, and only a proportion of these cases go into the UK analysis. To count as a co-operating household, all members aged 16 and over must fill in the diaries for both weeks and give full details of income etc. The available evidence suggests that households containing a couple with non-dependent children, those where the head is self-employed, and those where the head was born outside the United Kingdom, are less likely to co-operate than others (see 'A comparison of the Census characteristics of respondents and non-respondents to the 1991 Family Expenditure Survey' by Kate Foster, Survey Methodology Bulletin, ONS, No 38, Jan 1996). In addition response in Greater London is noticeably lower than in other areas.

5. The results in the article are based on the survey grossed up so that totals reflect the total population in private households in the United Kingdom (that is excluding those in institutions such as residential homes for the elderly). Households were assigned different initial weights based on the non-response in the 1991 FES. These weights were derived from Census-linked data (see 'Weighting the FES in Great Britain to compensate for non-response: an investigation using census-linked data' by Kate Foster). The final household weights were produced using specialised software developed by INSEE , the French national statistics institute. The control variables used in the grossing system were the number of individuals by age (in five year bands) and sex; and the number of individuals by region.

6. The FES is designed primarily as a survey of expenditure on goods and services by households. It has been developed to gather information about the income of household members, and is an important and detailed source of income data. However, no information is collected that would enable a balance sheet of income and expenditure to be drawn up for a household over any

particular period. Much expenditure relates to the two-week period after the interview, whereas many income components refer to a much longer period (eg investment income over the previous 12 months). FES income does not include proceeds from the sale of assets (eg a car) or windfalls such as legacies. But recorded expenditure might reflect these items, as well as the effects of living off savings, using capital or borrowing money. Hence, there is no reason why income and expenditure should balance either for an individual household or even averaged over a group of households. Indeed, measured expenditure substantially exceeds measured income for the bottom decile groups of households. Moreover, the difference between income and expenditure is not necessarily a measure of savings or dis-savings.

Unit of analysis

7. The basic unit of analysis in the article is the household, and not the family, individual or benefit unit. A household is defined in the FES as comprising people who live at the same address and who share common catering for at least one meal a day. Spending on many items, particularly on food, housing, fuel and light, is largely joint spending by the members of the household. Without further information or assumptions it is difficult to apportion indirect taxes between individuals or other sub-divisions of households.

8. In classifying the households into various types, a **child** (i.e. a dependant) is defined as:

either aged under 16

or aged 16, 17 or 18 not married, and receiving full-time non-advanced further education.

Most of the 'extra' adults in households with at least three adults are sons or daughters of the head of household rather than retired people.

9. **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 NI pension age describing themselves as 'unoccupied' or 'sick or injured but not intending to seek work'.

10. By no means all retired people are in retired households: about one in five households comprising three or more adults contains retired people, for example, and households comprising one retired and one non-retired adult are often classified as non-retired.

11. The sample households have been classified according to their compositions at the time of the interview. This classification is sensible for the vast majority of households, but it can be misleading for the very small number of cases (7 in 1997-98) where a spouse is absent from the household at the time of interview. The absent spouse may well be working away from home (eg on an oil rig), or living separately - but contributing financially to the household's upkeep. These contributions would be picked up as part of the household's original income. Also, it is likely that some households will have changed their composition during the year.

12. Economically active people comprise persons aged 16 or over who, at the time of interview, were:

employees at work,
employees temporarily away from work through illness, temporary lay-off, industrial action, etc,
on government training schemes,
self-employed,
not in employment but who had sought work within the last four weeks, or were waiting to start a job already obtained.

Income: redistributive stages

13. Stage one:

Original income plus cash benefits = Gross income.

Stage two:

Gross income minus income tax, employees' National Insurance contributions and local taxes (see paragraph 24 below) = Disposable income.

Stage three:

Disposable income minus indirect taxes = Post-tax income.

Stage four:

Post-tax income plus 'benefits in kind' = Final income.

14. The starting point of the analysis is **original income**. This is the annualised income in cash of all members of the household before the deduction of taxes or the addition of any state benefits. It includes income from employment, self-employment, investment income, occupational pensions and annuities. The term 'annualised' rather than 'annual' is used advisedly. For instance, annualised income from a respondent's 'main job' is not current wage or salary multiplied up to an annual value; nor is it the sum of income from this source in the twelve month period prior to interview. Rather it is an estimate of such income expressed at an annual rate based on the respondent's assessment of his "normal" wage or salary subject to his current employment status.

15. Furthermore, to avoid double counting and to make it consistent with the estimate of income from cash benefits (see paragraph 20),

this annualised estimate has to be 'abated' for the number of weeks likely to be lost due to unemployment, sickness, etc. This figure is taken as the number of weeks so lost in the 12 months prior to interview. It should be noted that regardless of whether the respondent is currently working or unemployed the treatment is essentially the same, ie normal gross wage or salary expressed at an annual rate abated as required.

16. In all of this the crucial determining role of current employment status should also be noted. Thus no employment income would be assigned to a respondent whose employment status had recently become retired or unoccupied even though he or she may have worked for most of the twelve months prior to interview.

17. About 98 per cent of original income comes from earnings, occupational pensions (including annuities) and investment income. The tiny bit remaining comes from a variety of sources: trade union benefits, income of children under 16, private scholarships, earnings as a mail order agent or baby-sitter, regular allowance from a non-spouse, allowance from an absent spouse and the imputed value of rent-free accommodation. Households living in rent-free dwellings are each assigned an imputed income. This is counted as employment income if the tenancy depends on the job.

18. In addition to salary, many employees receive as part of their income fringe benefits such as company cars, private medical insurance and beneficial loans. Until recently, these benefits were not allocated to individual households as the information was not available in the FES. However, the company car benefit, together with the benefit from fuel for personal use, has been included in the analysis since 1990. This is by far the most important fringe benefit accounting for over two thirds of all taxable fringe benefits according to Inland Revenue statistics. The benefit is taken to be the taxable income in accordance with Inland Revenue scale charges. *Inland Revenue Statistics 1998* (The Stationery Office) contains more detailed information on taxable fringe benefits and their impact on individuals. Although for those earning below £8,500 per year the benefit is not taxable, benefit has been allocated to all those with a company car regardless of the level of earnings. The calculation of this benefit is based primarily on the car price as reported in the FES. In any given year the total amount of benefit will depend on the level of scale charges for tax purposes as well as the numbers and prices of vehicles in the FES.

19. The benefit of subsidised loans from employers for house purchase has been allocated since the 1992 analysis. The benefit is taken to be the difference between the interest payments on such loans as reported in the FES and the interest payments that would have been payable at the ruling market rate of interest.

20. The next stage of the analysis is to add cash benefits to original income to obtain **gross income**. This is slightly different from the 'gross normal weekly income' used in the FES Report. Cash benefits include:

Contributory:

Retirement pension, part of job seeker's allowance, incapacity benefit, widows' benefits, and statutory maternity pay.

Non-contributory:

Income support, part of job seeker's allowance, child benefit, housing benefit (council tax benefit and rate rebates are treated as deductions from local taxes), invalid care allowance, attendance allowance, disability living allowance, disability working allowance, war pensions, severe disablement allowance, industrial injury disablement benefits, family credit, old persons pension, Christmas bonus for pensioners, government training scheme allowances (YTS etc), student maintenance awards.

21. Statutory maternity pay is classified as a cash benefit even though it is paid through the employer.

22. Income from short-term benefits is taken as the product of the last weekly payment and the number of weeks the benefit was received in the 12 months prior to interview. Income from long-term benefits, and from housing benefits, is based on current rates.

23. Income tax, local taxes and employees' and self-employed contributions to National Insurance and National Health services are then deducted to give **disposable income**. Capital gains tax, inheritance tax and other taxes on capital are not included in these deductions because there is no clear conceptual basis for doing so, and the relevant data are not available from the FES.

24. The figures for local taxes include:
council tax (for households in Great Britain),
domestic rates (for households in Northern Ireland),
and charges made by water authorities for water, environmental and sewerage services.

25. Council tax is shown after deduction of discounts to reduce or remove the personal element of the tax (eg the discount of 25 per cent for single person households). All local taxes are shown after the deduction of council tax benefit and rate rebates. This brings the treatment in line with that of National Accounts which treats such rebates as revenue foregone. Up to and including 1995-96 these rebates were included as part of housing benefits.

26. The tax estimates are based on the amount deducted from the last payments of employment income and pensions, and on the amount paid in the last 12 months in respect of income from self-employment, interest, dividends and rent. The income tax payments recorded will therefore take account of a household's tax allowances, with the exception of tax relief obtained 'at source'. In 1997-98 there were two main types of tax relief obtained in this way: mortgage interest relief and life assurance premium relief. Where households are eligible for these reliefs, imputations are made and deducted from recorded income tax payments. In the case of mortgage interest relief obtained through the MIRAS scheme, which was introduced in April 1983, these imputations are based on the interest component of the latest mortgage repayment.

27. The next step is to deduct indirect taxes to give **post-tax income.** Indirect tax on final consumer goods and services include:

Duties on alcoholic drinks, tobacco, petrol, oil, betting, etc
Value Added Tax (VAT)
Customs (import) duties
Motor vehicle duties
Air passenger duty
Insurance premium tax
Driving licences
Television licences
Stamp duties
Gas levy
Fossil fuel levy
Camelot: payments to National Lottery Distribution Fund

28. Taxes levied on final goods and services are assumed to be fully incident on the consumer, and can be imputed from a household's FES expenditure record. For example, the amount of VAT that is paid by the household is calculated from the household's total expenditure on goods and services subject to VAT.

29. VAT affects the prices of second-hand cars and is therefore assumed to be incident on the purchasers of such cars as well as on the purchasers of new cars. In allocating taxes, expenditures recorded in the FES on alcoholic drink, tobacco, ice cream, soft drinks and confectionery are grossed up to allow for the known under-recording of these items in the sample. The true expenditure in each case is assumed to be proportional to the recorded expenditure. This approach has its drawbacks because there is some evidence to suggest that heavy drinkers, for example, are under-represented in the FES.

30. The incidence of stamp duty on house purchase on an owner-occupying household has been taken as the product of the hypothetical duty payable on buying their current dwelling (estimated from valuations given in the FES) and the probability of a household of that type moving in a given year (estimated from the General Household Survey).

31. Indirect taxes on intermediate goods and services include:

Rates on commercial and industrial property
Motor vehicle duties
Duties on hydrocarbon oils
Employers' contributions to National Insurance, the National Health Service, the industrial injuries fund and the redundancy payments scheme
Customs (import) duties
Stamp duties
VAT

32. These are taxes that fall on goods and services purchased by industry. Only the elements attributable to the production of subsequent goods and services for final consumption by the UK personal sector are allocated in the article, being assumed to be fully shifted to the consumer. Their allocations between different categories of consumers' expenditure are based on the relation between intermediate production and final consumption using estimated input-output techniques. This process is not an exact science, and many assumptions have to be made. Some analyses, eg that by Dilnot, Kay and Keen 'Allocating Taxes to Households: A Methodology', suggest that the taxes could be progressive rather than regressive if one were to use different incidence assumptions.

33. For Table G of the main article, we have constructed a measure of expenditure on goods and services from data from the FES. Indirect taxes are shown as a proportion both of disposable income and of expenditure. One drawback of comparing the incidence of indirect taxes on households at different levels of income is that, by whatever measure used, on average, recorded expenditure exceeds income apparently available for it by significant amounts at the bottom of the distribution. Thus, it has been argued that for many households, where, for instance, income fluctuates widely or where it is difficult to measure accurately, a measure based on regular household outgoings would be a far better indicator of resources available to the household and therefore give a better picture of the incidence of indirect taxes.

34. This measure of expenditure has been customised to be analogous to the definition of disposable income used in the analysis in order to facilitate these comparisons. For instance, because the imputed benefit of company cars and beneficial loans will have boosted the figure for disposable income these items have had to be added to this expenditure measure. Expenditure

on alcohol, tobacco and confectionery have been grossed up for under-recording in line with the treatment of the indirect taxes on these items. Payments deemed to be made out of income such as superannuation, regular savings, mortgage repayments etc have been included and adjusted where necessary but not items such as lumpsum capital payments in line with the exclusion of capital gains and windfalls from income.

35. Finally, we add those notional benefits in kind provided to households by government for which there is a reasonable basis for allocation to households, to obtain **final income**. The benefits in kind allocated are:

State education
School meals and welfare milk
National Health Service
Housing subsidy
Railway travel subsidy
Bus travel subsidy (including concessionary fares schemes)

36. Education benefit is estimated by the Department for Education and Employment as the cost per pupil or student in special schools, primary and secondary schools, universities, and other further education establishments. The value of the benefits attributed to a household depends on the number of people in the household recorded in the FES as receiving each kind of state education (students away from the household are excluded). No benefit is allocated for pupils attending private schools.

37. The value of school meals and other welfare foods is based on their costs to the public authorities. Any payment by the individual household is subtracted to arrive at a net contribution.

38. Data are available on the average cost to the Exchequer of providing the various types of health care - hospital inpatient/ outpatient care, GP consultations, dental services, etc. Each individual in the FES is allocated a benefit from the National Health Service according to the estimated average use made of these various types of health service by people of the same age and sex, and according to the total cost of providing those services. The benefit from maternity services is assigned separately to those households containing children under the age of 12 months. No allowance is made for the use of private health care services.

39. In this article public sector tenants are defined to include the tenants of local authorities, New Town Corporations, the Scottish Special Housing Association (SSHA), Northern Ireland Housing Executive (NIHE) and housing associations. The total housing subsidy includes the contribution from central government to the housing revenue accounts of local authorities: and grants paid to the New Town Corporations, the SSHA, the NIHE and housing associations. Within Greater London, the rest of England, Wales, Scotland and Northern Ireland each public sector tenant has been allocated a share of the region's total relevant subsidy based on the Council Tax band of the dwelling. Housing subsidy does not include mortgage interest tax relief, rent rebates and allowances or local tax rebates.

40. The rail travel subsidies allocated are the support payments made to the train operating companies. The subsidy to London and South East services is allocated to households living in the area and subsidies to provincial services to households living outside the South East, in proportion to households' expenditure on rail fares as recorded in the FES. In making these allocations, allowances are made for the use of rail travel by the business sector, tourists and the institutional part of the personal sector.

41. In this article, bus travel subsidy covers both the cost of concessionary travel schemes for senior citizens and others, and subsidies to operators. Separate allocations are made for Greater London, the other metropolitan areas and the rest of the United Kingdom. The subsidy is divided between households according to recorded expenditure on bus travel and the types of concessionary passes held.

42. We must emphasise that the analysis in this article provides only a rough guide to the kinds of household which benefit from government expenditure, and by how much, and to those which finance it. Apart from the fact that large parts of expenditure and receipts are not allocated, the criteria used both to allocate taxes and to value and apportion benefits to individual households could be regarded as too simplistic.

43. For example, the lack of data forces us to assume that the incidence of direct taxes falls on the individual from whose income the tax is deducted. This implies that the benefit of tax relief for mortgage interest, for example, accrues directly to the taxpayer rather than to some other party, for instance, the vendor of the land. It also implies that the working population is not able to pass the cost of the direct tax back to employers through lower profits, or to consumers through higher prices.

44. In allocating indirect taxes we assume that the part of the tax falling on consumers' expenditure is borne by the households which buy the item or the service taxed, whereas in reality the incidence of the tax is spread by pricing policies and probably falls in varying proportions on the producers of a good or service, on their employees, on the buyer, and on the producers and consumers of other goods and services.

45. Another example is that we know only an estimate of the total financial cost of providing benefits such as education, and so we have to treat that cost as if it measured the benefit which accrues to recipients of the service. In fact, the value the recipients themselves place on the service may be very different to the cost of providing it. Moreover, there may be households in the community, other than the immediate beneficiaries, who receive a benefit indirectly from the general provision of the service.

Equivalence scale

46. The equivalence scale used in this analysis is the *McClements scale* (**before** housing costs are deducted). The scales (separate ones for before and after housing costs) were developed by Dr L D McClements at the Department of Health and Social Security (DHSS) in the mid-seventies, based on expenditure data from the 1971 and 1972 FES. They are based on the assumption that it is possible to estimate equivalence scales from people's spending behaviour as recorded in the FES without making any specific assumption about the criteria for equivalence. These scales are in regular use and an analysis by Banks and Johnson ('Children and Household Living Standards', IFS, 1993) suggests that the scales are as valid now as when they were developed. The scales are regarded as plausible and they are well within the range of equivalence scales developed at different times in a number of countries. Hence their use is fully justified for broad statistical standardisation.

47. The equivalence values are given below:

Type of household member	Equivalence value
married head of household	
(ie a married or cohabiting couple)	1.00
1st additional adult	0.42
2nd (or more) additional adult	0.36 (per adult)
single head of household	
adult	0.61
1st additional adult	0.46
2nd additional adult	0.42
3rd (or more) additional adult	0.36 (per adult)
Child aged:	
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

48. The values for each household member are added together to give the total equivalence number for that household. This number is then divided into the disposable income for that household to give **equivalised disposable income**. For example, a household has a married couple with two children (aged six and nine) plus one adult lodger. The household's equivalence number is 1.0 + 0.21 + 0.23 + 0.42 = 1.86. The household's disposable income is £20,000, and so its equivalised disposable income is £10,753 (=£20,000/1.86).

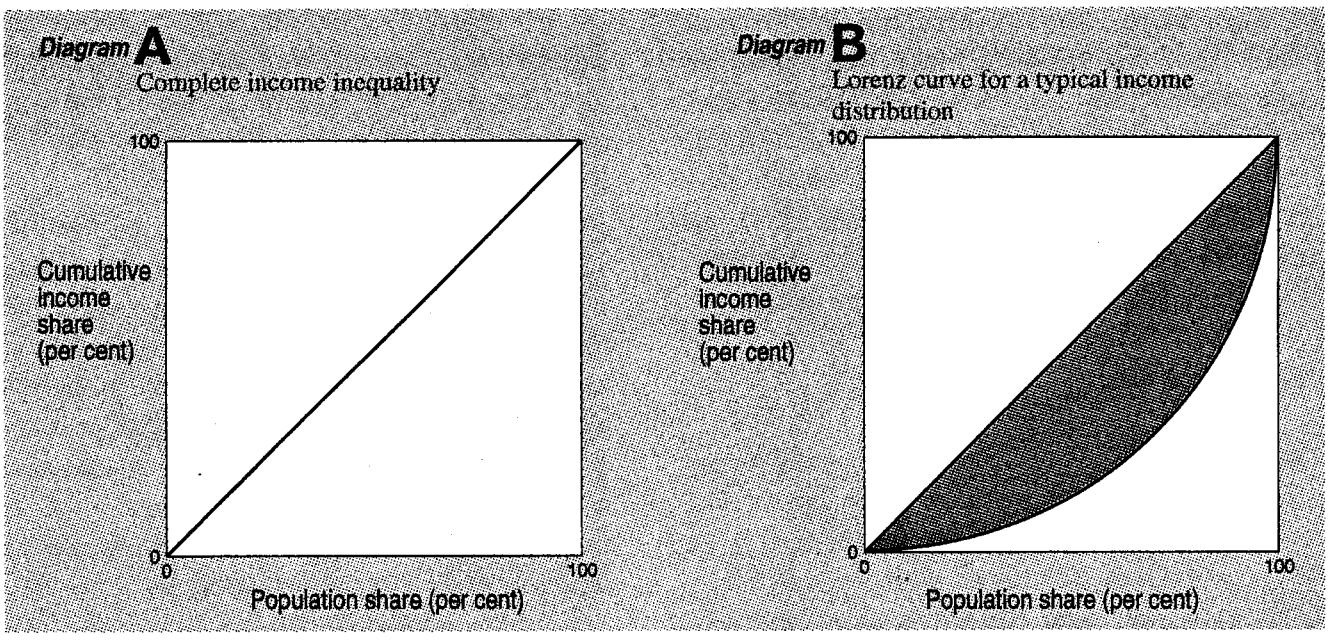
49. This quantity is used to produce the single ranking used in all the tables in this article (apart from the Gini coefficients which have to be ranked afresh for each different definition of income).

50. It is important to note that most monetary values shown in the article are ordinary (ie un-equivalised) £ per year, not equivalised £ per year. Where equivalised values do appear (eg the quintile points in Table 2A of Appendix 1), they are shown in *italics*.

Gini coefficient

51. The Gini coefficient is the most widely used summary measure of the degree of inequality in an income distribution. It can more easily be understood by considering a Lorenz curve of the income distribution, (see Diagram B) ie a graph of the cumulative income share against the cumulative share of households. The curve representing complete equality of income is thus a diagonal line while complete inequality (with only one recipient of income) is represented by a curve comprising the horizontal axis and the right-hand vertical axis (see Diagram A). The area between the Lorenz curve and the diagonal line of complete equality, as a proportion of the triangular area between the curves of complete equality and inequality, gives the value of the Gini coefficient. Thus a distribution of perfectly equal incomes has a Gini coefficient of zero; as inequality increases (and the Lorenz curve bellies out), so does the Gini coefficient until, with complete inequality, it reaches its maximum value of 1 (or 100 per cent).

52. To calculate the Gini coefficient for an income distribution, the first step is to rank that distribution in ascending order. All the Gini coefficients shown in this article are based on



distributions of equivalised income eg the coefficient for original income is calculated after dividing the original income for all the households by their appropriate equivalence values.

53. Strictly speaking, one could argue that the equivalence scales used here are only applicable to disposable income because this is the only income measure relating directly to spending power. Since the scales are often applied, in practice, to other income measures, we are content to use them to equivalise original, gross and post-tax income for the purpose of producing Gini coefficients (and in the tables giving percentage shares of total income). However, we do not think it is appropriate to equivalise the final income measure because this contains notional income from benefits in kind (eg state education): the equivalence scales used in this article are based on actual household spending and do not, therefore, apply to such items as notional income.

Impact of grossing

54. The survey results have been grossed up so that the population totals reflect the whole household population. Different grossing factors are applied to different types of households in order to correct for over and under-representation of these groups in the responding sample of the FES. Grossing raises the quality of the estimates by making the population more representative and by improving the allocation of national accounts aggregates to individual households. Estimates based on the grossed up data set are different from estimates based on the sample. Indeed, if they were not, there would be little point in grossing. The effect of grossing on some of the major variables used in the analysis was given in last year's article. More detail about the effect of grossing can be obtained from the ONS on request.

Sampling errors and reliability

55. As the FES 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. Conversely, it is largest for small groups of households, and for measures that vary considerably between households. A broad numerical measure of the amount of variability is provided by the quantity known as the standard error.

56. It is difficult to calculate these standard errors exactly because of the multi-stage design of the FES, but we have made a good approximation by combining the simple random formula with the appropriate design factor from the FES analysis. [The design factor is the ratio of the standard error using the detailed formula that takes account of the full complexity of the sample design to the standard error using the simple random sample formula.] The most appropriate design factor from the FES work is for 'gross normal weekly household income'. The standard error of the mean for N households is given by:

$$(\text{design factor}) * S/\sqrt{N}$$

where the design factor is 1.31 for 1997-98, and S^2 is the estimate of the population variance.

57. The standard error for disposable income of all households is less than 2 per cent of the mean but, for the less frequent household types, eg 1 adult with children and 3 or more adults with children, it is about 5 per cent of the mean.

58. The standard errors can be used to give an idea of the reliability of a mean by quoting a confidence interval of the form:

estimate of mean + or - (1.96 * standard error)

where the factor 1.96 corresponds to the 95per cent confidence interval.

59. The standard errors for the household types are larger than for the whole sample, mainly because the sample sizes concerned are smaller. For quantile groups of given household types, the sample sizes are of course smaller still, which would tend to increase sampling variability. On the other hand, the income values are by definition in a narrower range which would tend to reduce the sampling error.

60. Precise estimates of standard errors for averages for quantile groups are complicated to produce. As well as the variability of the observations between the quantile points, we should also take account of the randomness which exists because the sample quantile points are themselves subject to random variation. We have used a formula for the asymptotic variance of a 'randomly trimmed' mean. This formula gives a good approximation where the total sample size is around 1,000 (when the variance is under-estimated by about 2 per cent on average), and a reasonable approximation for samples of 100-500 (when the variance is under-estimated by about 5 per cent on average). The formula for the variance of a mean (x) calculated between two sample percentiles, Q_1 and Q_2, corresponding to proportions p_1 and p_2 is:

$$\frac{S^2 + p_1 (x - Q_1)^2 + (1 - p_2)(Q_2 - x)^2 + \dfrac{p_1 (1 - p_2)}{(p_2 - p_1)} (Q_2 - Q_1)^2}{n (p_2 - p_1)}$$

where S^2= variance calculated from observations between Q_1 and Q_2, and n = total sample size.

The square root of this quantity is then multiplied by the design factor (as described in paragraph 56) to give the standard errors.

61. The 'complex' standard errors for quintile and decile groups are quite a bit larger than the simple random sample estimates. For the 'all households' group, the standard errors for disposable income for the middle decile groups are about 10 per cent of the mean for the group.

62. More information on standard errors for the income measures for the different household types and quantile groups is available on request.

Previous articles

63. This article is the latest in an annual series covering the years from 1957 onwards. From 1987 onwards, the articles have used a very different methodology, in particular households are ranked by their equivalised disposable income. Hence the results are completely incompatible with earlier years. Last year the article was published in the April 1998 edition of Economic Trends. A list of the previous articles was included in the article published in March 1997.

64. The results in all articles are intended to be free standing: they were not designed for direct comparison with other years except where some limited comparisons were made in the articles. Such comparisons are fraught with difficulty because of changes in definitions eg housing benefit in 1983. However, some broader measures like the Gini coefficients are relatively robust and will stand comparison with other years: this year's article gives such a comparison for the years 1977-1997-98.

65. Enquiries should be addressed to Dave Westcott, Social and Regional Division, Office for National Statistics, Zone B4/08, 1 Drummond Gate, London SW1V 2QQ.