

THE EFFECTS OF TAXES AND BENEFITS ON HOUSEHOLD INCOME, 1989

The main points are:

(1) The effect of government expenditure and taxation is to reduce the differences in income amongst households. In 1989 taxes and benefits (including NI pensions) increased the share of total income of the bottom fifth of households from 2.0 per cent of original income to 6.9 per cent of post-tax income (Table C). Cash benefits play the largest part in reducing income differences.

(2) The joint impact of taxes and benefits is greatest for retired households and for those non-retired households containing no economically active people.

Introduction

The aim of this analysis is to examine how the distribution of income amongst households in the UK is modified as a result of Government expenditure and taxation. During 1989 the Government raised and spent £196 billion; most of this revenue was raised, directly or indirectly, from UK households who also benefited, directly or indirectly, from the associated Government expenditure. In this article over half of this expenditure is allocated to households (see Table 1 in Appendix 1). Although greater equality of incomes is not necessarily a primary aim of this process, it is nevertheless one of its consequences. This article is the latest in an annual series published in *Economic Trends* since the early 1960s. Each year the article covers the same main ground but also usually has a special topic. This year, however, the special topic has been omitted, in order to speed up production of the 1990 article.

Last year (ie 1988 results) we reworked the data for previous years using the new methodology introduced with the 1987 results. The most important change was to introduce equivalisation (ie adjusting income to allow for household size and composition) into the ranking process. The trends in the income distribution over the period 1977-1988, reworked on the new basis, formed last year's special topic.

Equivalisation

Equivalisation means adjusting household income to allow for household size and composition.

For example: consider two married couples, both earning £15,000 a year, the Jones with no children and the Smiths with two children (aged 3 and 5). The Jones have an equivalence factor of 1.00 whereas the Smiths have a factor of 1.39 (where the 0.39 accounts for the children). The Smiths have a lower equivalised income at £10,791 (=£15,000/1.39) than the Jones at £15,000 (=£15,000/1.00).

The contents are as follows:

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|--------------|--|
| Main article | Results for 1989 for all households, and for retired and non-retired households separately. |
| Appendix 1 | Detailed tables for 1989, with fine breakdown of income components for quintile and decile groups, and results for different types of household. |
| Appendix 2 | Methodology and definitions. |
| Appendix 3 | Three tables for 1989, ranked using <i>unadjusted</i> disposable income. |
| Appendix 4 | Trends in income distribution, 1977-1989. |

Background

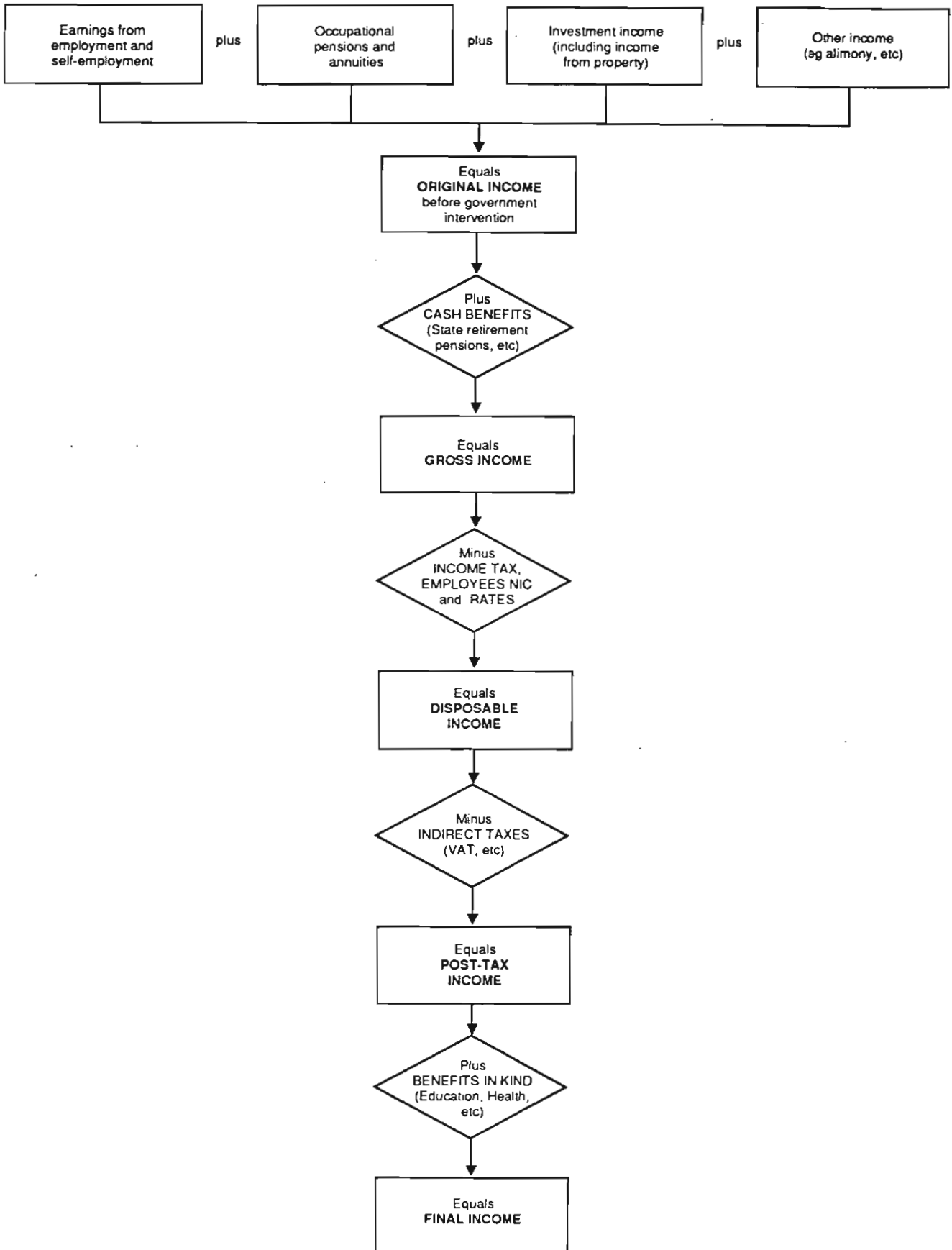
The main data source is the annual Family Expenditure Survey (FES). Since this article is based on a sample survey, its results are subject to sampling errors. These are generally larger for the smaller household groups (further details on sampling errors and reliability are given in Appendix 2). The unit of analysis is the household, rather than the person or benefit unit. This analysis gives a snapshot of different households at various stages in their lifecycles; it reflects the fact that most people have less income when elderly than at their peak earning age. The monetary values in the tables in the main body of the article are rounded to the nearest £10. The tables generally show actual annual incomes and taxes (ie unadjusted or un-equivalised), but some of the appendix tables also give equivalised disposable income values (shown in *italics*) as well. Because not everybody wants to use a distribution ranked by equivalised income, we have also shown three tables ranked by unadjusted disposable income in Appendix 3.

The figures in each year's article are free standing and are not intended to be used as part of a time series with figures from earlier articles. However, Gini coefficients and shares of income are relatively robust and can be used to gauge the trend of income distribution. The philosophy underlying these articles is to use a given year's FES to produce the most meaningful figures for that year (on the basis of the definitions current for the FES at the time), rather than aim to produce figures on exactly the same basis from one year to the next. The FES changes slightly each year, and no special effort has been made in the past to ensure a fully-consistent time series. The major changes to the methodology in the 1987 article mean that the 1987 (and later) figures are completely incompatible with those already published for earlier years.

Studies have indicated that the FES suffers from some non-response bias, for example through under-representation at the very top of the income distribution, the elderly and the self-employed. However, the data presented in this article have not been reweighted to take account of non-response bias, with the exception of some indirect taxes (see below).

CHART 1

Stages of redistribution



Summary of the effects of taxes and benefits, 1989

TABLE A

	Quintile groups of households ranked by equivalised disposable income					All households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)⁽¹⁾						
Original income	1 280	4 760	11 580	17 880	30 050	13 110
plus cash benefits	3 340	3 010	1 770	1 110	660	1 980
Gross income	4 630	7 770	13 340	18 990	30 710	15 090
less direct taxes ⁽²⁾ and employees' NIC	670	1 220	2 610	4 010	6 730	3 050
Disposable income	3 960	6 550	10 730	14 980	23 970	12 040
less indirect taxes	1 120	1 570	2 460	3 050	3 890	2 420
Post-tax income	2 840	4 990	8 270	11 920	20 080	9 620
plus benefits in kind	2 370	2 220	2 070	1 820	1 320	1 960
Final income	5 200	7 210	10 340	13 740	21 400	11 580
Average per household (number)						
Children ⁽³⁾	0.7	0.6	0.8	0.6	0.4	0.6
Adults	1.6	1.8	2.0	2.1	2.0	1.9
Persons	2.2	2.4	2.8	2.7	2.4	2.5
People in full-time education	0.5	0.5	0.6	0.5	0.3	0.5
Economically active people	0.3	0.7	1.4	1.7	1.7	1.2
Retired people	0.7	0.7	0.4	0.2	0.1	0.4

1 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).

2 These are income tax (which is after tax relief at source on mortgage interest and life assurance premiums) and gross domestic rates/Community charge.

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

The data on household income, cash benefits, income tax, National Insurance contributions and domestic rates are used directly from the FES. In contrast, the figures for indirect taxes (eg VAT, duty on beer) and benefits in kind (eg from state education) are calculated using an imputation process - which uses FES data, for example on households' expenditure and characteristics. This imputation process is carried out within the framework of the National Accounts aggregates, and involves many assumptions (for example on incidence and grossing up for non-response on alcohol expenditure). Some of these assumptions are doubtful, and hence the results of this part of the analysis are subject to a wide margin of error. Tables 1 and 2 in Appendix 1 give government expenditure and its financing for 1989, derived from the National Accounts. Appendix 2 gives more detail on the methodology.

MAIN ARTICLE

Chart 1 illustrates the stages of redistribution which form the structure of this analysis. Initially, household members receive income from their employment (wages and salaries, self-employment income); from occupational pensions; from their investments and from other households (eg alimony payments). Total income from these sources constitutes original income. The flow chart shows the various ways in which Government then raises revenue from households and distributes benefits to them both in cash and in kind.

RESULTS FOR ALL HOUSEHOLDS

The level of original income varies widely between households. Table A shows this and other income measures for quintile groups ranked by equivalised disposable income (the lowest quintile group

contains the 20 per cent of households with the lowest equivalised disposable incomes). In the lowest quintile group the average number of economically active people is 0.3 and hence the average original income is low (£1,280 per annum). In the highest quintile group, there are an average of 1.7 economically active people and average original income is £30,050. In the lowest quintile group, half of the households are retired (Table B) - defined as households where at least half the total gross income comes from retired people - and the majority of these have virtually no original income since the state retirement pension (including any graduated or additional pension) is a cash benefit.

Chart 2 illustrates the declining importance of cash benefits in gross income as income rises.

Chart 3 shows how the dispersion of incomes is reduced at each stage of the tax-benefit system, so that the average final income for each quintile group ranges from £5,200 to £21,400, a ratio of about 1:4 compared with the ratio for original incomes of about 1:23.

An alternative way to illustrate the extent of income redistribution is to examine how income shares are modified by the tax-benefit system (Table C). For example, households in the highest quintile group (when ranked by equivalised disposable income) receive around 50 per cent of all original income. After taking into account cash benefits, this same group's share falls to 42 per cent. At the other end of the scale, the share of the lowest quintile group rises from 2.0 per cent to 7.1 per cent. A further, but comparatively smaller, compression of the income distribution occurs at the stage of disposable income, but this is reversed after indirect taxes are taken into account. This table is calculated using equivalised

The composition of each quintile group of households, 1989

TABLE B

	Quintile groups of households ranked by equivalised disposable income					All households
	Bottom	2nd	3rd	4th	Top	
Percentages						
Household type						
Retired	52	45	17	9	7	26
Non-retired						
1 adult	10	7	10	12	17	11
2 adults	7	11	21	27	40	21
1 adult with children ⁽¹⁾	10	6	2	1	1	4
2 adults with children	15	20	33	29	22	24
3 or more adults ⁽²⁾	5	11	17	22	13	14
Total	100	100	100	100	100	100

1 This group is smaller than the category of "one parent families" because some of these families will be contained in larger household types.

2 With or without children

incomes, and hence 'final income' has not been included. The McClements equivalence scales, which were estimated using household spending patterns, are arguably inappropriate for equalising non-spendable amounts of income eg benefits from education.

The Gini coefficient is the most widely used summary measure of the inequality of the distribution of income (see paragraph 40 of Appendix 2). It takes values between 0 and 100 per cent - the higher values indicating greater inequality. In this article, Gini coefficients are now calculated using equivalised incomes (using the same equivalence scale that is applied to equalise disposable income). The fall from 50 per cent to 36 per cent shown in Table C shows that cash benefits contribute the most to the reduction in income inequality.

Attention has already been drawn to the preponderance of retired households in the lower ranges of the distribution of original income; nearly half of the households in the bottom two quintile groups are retired (Table B). The income pattern of the retired is very different from that of households whose head is of working age, as is their expenditure pattern (which is reflected in their indirect tax payments). For this reason in the detailed examination of each stage of the tax-benefit system which follows, retired and non-retired households are analysed separately.

RESULTS FOR NON-RETIRED HOUSEHOLDS

Original income

The distribution of original income amongst non-retired households is more equal than among all households, ranging from an average of £3,260 per annum in the lowest quintile group to £32,660 in the highest (Table D), a ratio of 1:10 compared to the ratio of 1:23 for the distribution over all households. There is a relatively strong relationship between the original income of a household and the number of economically active people it contains and Table K (at the end of this section) gives a breakdown by the number of economically active people per household.

CHART 2

Sources of gross income, by quintile groups of equivalised disposable income, 1989

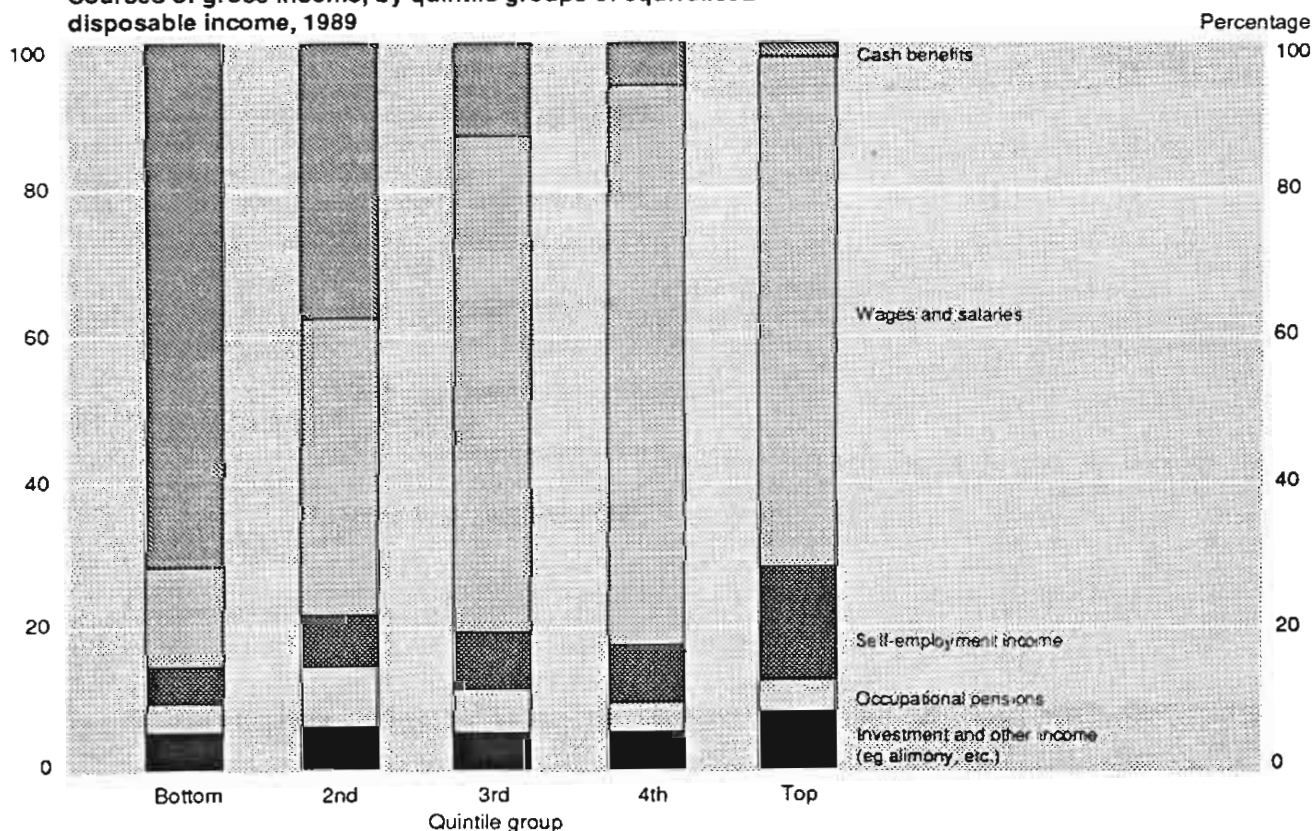
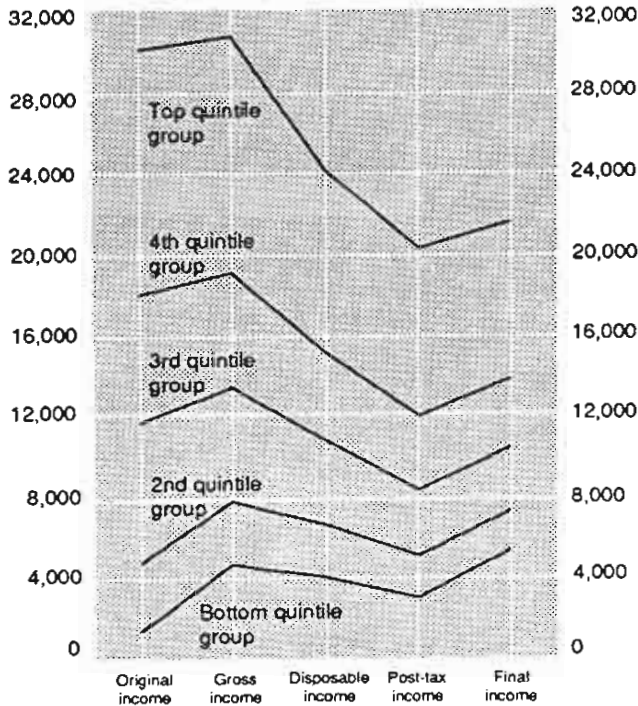


CHART 3

The effects of taxes and benefits on quintile groups¹ of households, 1989

Average income per household (£ per year)



1. Households are ranked throughout by their equivalised disposable incomes

Percentage shares of total household income and Gini coefficients⁽¹⁾, 1989

TABLE C

	Percentage shares of total equivalised income for households ranked by equivalised disposable income			
	Original income	Gross income	Disposable income	Post-tax income
Quintile group				
Bottom	2.0	7.1	7.6	6.9
2nd	7	11	12	11
3rd	16	16	17	16
4th	26	23	23	23
Top	49	42	41	43
All households	100	100	100	100
Decile group				
Bottom	0.8	3.1	3.2	2.6
Top	30	26	26	27
Gini coefficient (percent) ..	50	36	34	37

1 This is a measure of the dispersion of each definition of income.

Unlike the percentage shares analysis where the household incomes are ranked only once, the Gini coefficient calculation needs a separate ranking for each income definition. For example, the coefficient for original income is produced by first equivalising the original income of all the households, then this distribution is ranked and this ranked distribution is used to calculate the coefficient.

Summary of the effects of taxes and benefits on NON-RETIRED households, 1989

TABLE D

	Quintile groups of NON-RETIRED households ranked by equivalised disposable income					All non-retired households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Original income	3 260	10 570	15 430	20 790	32 660	16 540
<i>plus</i> cash benefits	3 130	1 750	1 210	680	420	1 440
Gross income	6 390	12 310	16 640	21 470	33 080	17 980
<i>less</i> direct taxes ⁽¹⁾ & employees' NIC	960	2 370	3 380	4 650	7 230	3 720
Disposable income	5 420	9 950	13 260	16 820	25 850	14 260
<i>less</i> indirect taxes	1 620	2 430	2 890	3 420	4 010	2 870
Post-tax income	3 800	7 520	10 370	13 400	21 840	11 390
<i>plus</i> benefits in kind	3 060	2 460	2 120	1 670	1 250	2 110
Final income	6 860	9 980	12 490	15 070	23 080	13 500
Average per household (number)						
Children ⁽²⁾	1.3	1.0	0.8	0.6	0.4	0.8
Adults	1.8	2.1	2.2	2.2	2.0	2.0
Persons	3.0	3.1	3.0	2.8	2.4	2.9
People in full-time education	1.0	0.8	0.6	0.4	0.3	0.6
Economically active people	0.7	1.5	1.8	2.0	1.8	1.6
Retired people	0.1	0.1	0.1	0.1	-	0.1

1 These are income tax (which is after tax relief at source on mortgage interest and life assurance premiums) and gross domestic rates.

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

Average value of cash benefits for each quintile group of NON-RETIRED households, 1989

TABLE E

	Quintile groups of NON-RETIRED households ranked by equivalised disposable income					All non-retired households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Contributory						
Retirement pension	140	260	260	120	90	170
Sickness/ injury related	280	240	180	100	50	170
Unemployment benefit	80	50	40	30	10	40
Other	80	70	60	40	60	60
Total contributory	580	620	550	290	210	450
Non-contributory						
Income support	1 040	270	100	40	10	290
Child benefit	490	400	310	210	160	310
Housing benefit	610	130	40	10	-	160
Sickness/ disablement related	140	180	120	70	20	110
Other	280	150	100	50	20	120
Total non-contributory	2 550	1 130	660	390	210	990
Total cash benefits	3 130	1 750	1 210	680	420	1 440
Cash benefits as a percentage of gross income	49	14	7	3	1	8

Cash benefits

Cash benefits are of two types: contributory (paid from the National Insurance Fund to which individuals and their employers make contributions while working), and non-contributory (Table E). For non-retired households, non-contributory benefits form the most important source of cash benefit income. An important item, child

Income tax, employees' NIC and domestic rates/Community charge as percentages of gross income for each quintile group of NON-RETIRED households, 1989

TABLE F

	Quintile groups of NON-RETIRED households ranked by equivalised disposable income					All non-retired households
	Bottom	2nd	3rd	4th	Top	
Percentages						
Income tax ⁽¹⁾	4.5	9.5	11.2	13.0	15.5	12.5
Employees NIC	2.7	5.2	5.6	5.7	4.2	4.8
Gross domestic rates/Community charge	7.9	4.5	3.5	2.9	2.1	3.3
Total	15.1	19.2	20.3	21.6	21.9	20.7

¹ After tax relief at source on mortgage interest and life assurance premiums.

benefit, is concentrated towards the bottom of the income distribution, in proportion to the number of children per household (Table D). The other non-contributory benefits are mainly income-related, in particular Income Support (formerly Supplementary Benefit) and so payments are concentrated in the lowest quintile group, although the presence of some individuals with low incomes in high income households means that some payments are recorded further up the income distribution. Most contributory benefits, for which contribution records rather than income are the criteria for payment, are highest for the second quintile group. On average, cash benefits formed almost 10 per cent of the gross income of non-retired households: their payment resulted in a significant reduction in income inequality.

Income tax, NI Contributions and domestic rates

Both income tax payments and employees' National Insurance contributions are closely related to the size of original income. The payments by households of employees' National Insurance contributions in particular vary with the number of persons in employment and with their earnings. However, since National Insurance contributions are only levied on the first £325 of weekly earnings (the ceiling in operation during most of 1989), households in the top quintile group pay rather less in contributions as a percentage of gross income than the middle 60 per cent of households (Table F).

In 1989 over one-third of working age individuals had insufficient income to pay income tax, and marginal tax rates for taxpayers were 25 per cent or 40 per cent. The analysis of households when ranked by equivalised disposable income shows average rates were 4.5 per cent in the lowest quintile, rising steadily to 15.5 per cent in the top quintile. This pattern arises chiefly because the quintile groups are based on (after tax) equivalised disposable income, which means that even the lowest quintile is shown as paying some income tax. Additional reasons are the grouping together of sizeable and diverse populations of individuals into quintile groups of households, and the expression of tax as a proportion of gross (rather than taxable) income.

Domestic rates (which used to be treated in these articles as an indirect tax) are included here with income tax and NICs on the grounds that this is the appropriate treatment for the community charge which succeeded the rates. Rate rebates (treated as a cash benefit) were an integral part of the domestic rates regime, designed to attenuate the regressive impact of rates at the lower end of the income distribution. The treatment of rates in Table F is thus unusual, and overstates their regressive impact.

Indirect taxes

In total, indirect taxes expressed as a proportion of disposable income fall as disposable income rises (upper part of Table G), ranging from 29 per cent in the bottom quintile group to 16 per cent in the highest, though the highest quintile pay most in indirect taxes in absolute terms. However, individual taxes have different effects.

VAT, tobacco duty, beer duty and intermediate taxes (see box below) all fall as a percentage of disposable income as income rises. The fall in tobacco duty payments as a percentage of income is particularly marked. For expenditure items relating to motoring (ie car tax and duty on hydrocarbon oils), the tax as a proportion of income is similar for the bottom four quintile groups but much lower for the top group.

Indirect taxes as a percentage of (a) disposable income and (b) expenditure on goods and services for each quintile group of NON-RETIRED households, 1989

TABLE G

	Quintile groups of NON-RETIRED households ranked by equivalised disposable income					All non-retired households
	Bottom	2nd	3rd	4th	Top	
(a) Percentages of disposable income						
VAT	10.4	9.1	8.6	8.4	6.8	8.1
Duty on beer and cider	1.1	1.0	1.0	0.8	0.5	0.8
Duty on wines and spirits	0.8	0.8	0.7	0.8	0.7	0.8
Duty on tobacco	4.9	2.9	2.0	1.5	0.7	1.8
Duty on hydrocarbon oils	2.1	1.7	1.7	1.6	1.1	1.5
Car tax and vehicle excise duty	1.2	1.3	1.2	1.1	0.8	1.0
Other taxes on final goods and services	2.3	1.9	1.6	1.4	1.1	1.4
Intermediate taxes	7.2	5.6	5.1	4.7	3.8	4.8
Total indirect taxes	29.9	24.4	21.8	20.3	15.5	20.2
(b) Percentages of expenditure on goods and services⁽¹⁾						
VAT	7.3	7.8	8.0	8.4	8.3	8.1
Duty on beer and cider	0.8	0.9	0.9	0.8	0.6	0.8
Duty on wines and spirits	0.6	0.6	0.7	0.8	0.9	0.8
Duty on tobacco	3.5	2.5	1.8	1.5	0.9	1.8
Duty on hydrocarbon oils	1.5	1.5	1.6	1.5	1.3	1.5
Car tax and vehicle excise duty	0.8	1.1	1.1	1.1	1.0	1.0
Other taxes on final goods and services	1.6	1.6	1.5	1.4	1.3	1.4
Intermediate taxes	5.1	4.8	4.7	4.7	4.6	4.8
Total indirect taxes	21.2	20.8	20.4	20.3	19.0	20.1

¹ Excludes savings, investments, superannuation contributions, and mortgage payments but includes imputed rent of owner occupiers (see paragraph 28 of Appendix 2 for the full definition of expenditure).

INTERMEDIATE TAXES

Some indirect taxes, such as VAT and excise duties on petrol, alcohol, tobacco, etc have a direct effect on the final price of goods and services. However, the producers of these goods and services also incur costs such as employers' National Insurance contributions, non-domestic rates, and duty on hydrocarbon oils, part of which they may pass on to households in the price of their products. These are called intermediate taxes.

The incidence assumptions used for these taxes are more difficult and contentious than those used for other taxes, so the figures must be regarded as very rough estimates.

Although some indirect taxes are less regressive than others, Table G (upper part) shows that the impact of virtually all the indirect taxes declines for the top quintile group compared with the fourth quintile group. This is so partly because higher income households tend to save a larger proportion of their income than households with smaller incomes.

The estimates of households' payments of indirect taxes are derived from figures for their expenditure recorded in the FES. Because the

data on expenditure and incomes in the FES are compiled in different ways, they may not be fully compatible (see Appendix 2, paragraph 5).

Thus, Table G also shows estimates of indirect tax payments expressed as a percentage of expenditure (in the lower part of the table), as these figures are fully consistent. Indirect taxes in total form a virtually constant proportion of expenditure on goods and services over all income groups. However, VAT payments actually rise as a proportion of expenditure as income goes up. This is largely due to the effects of zero-rating some items such as food and domestic fuel and power, which make up a higher proportion of the spending of the lower income groups. The apparent paradox of indirect taxes being regressive against disposable income but neutral against expenditure can be explained, at least in part, as follows: as income rises, there is a tendency for an increasing proportion of disposable income not to be spent on goods and services but to be channelled into savings, investments and mortgage payments.

Benefits in kind

Government current expenditure in providing certain goods and services to households either free at the time of use or at subsidised prices is converted by imputation into the equivalent of an income flow to individual households in order to arrive at final income. The largest two items for which such imputations are made are the health and education services, which together accounted for 23.3 per cent of total general government expenditure in 1989. Other items for

which imputations are made are school meals and welfare milk, the housing subsidy and travel subsidies, together accounting for a further 1.6 per cent of general government expenditure.

Education benefit to individual households is imputed by reference to the number of pupils and students in the state sector in the households (students living away from home are not included as part of their parents' household), and to the type of education they are receiving, though no allowance is made for differing costs between local authorities. No benefit is allocated for pupils at private schools. The bottom quintile group contains the highest number of children and consequently the highest number of those in full-time education (Table D). This is the main reason for this quintile group being allocated the highest average imputed benefit (Table H). Another important factor is the presence of the majority of student-only households, for whom the costs of education are greatest. Similarly the impact of expenditure on school meals and welfare milk is greatest in the lower income groups where children are more likely to take school meals and have them provided free of charge.

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 - and it is possible to estimate the use made of each service on average by individuals of different ages and sex. Using this information, an imputed benefit from the state health service can be allocated to each individual in the FES sample; no allowance is made for the use of private health care services. These benefits are then aggregated for members of the household to yield figures on a household basis, so that not only the sex and age composition but also the size of the household determines the attribution of health service benefits.

Age and sex are by no means the only possible determinants on which to base the allocation, but age is certainly a very important factor. Data availability also limits the choice of determinants - the FES collects little information on health or use of health services. Table H indicates that these benefits decline steadily as income goes up.

Average value of benefits in kind for each quintile group of NON-RETIRED households, 1989

TABLE H

	Quintile groups of NON-RETIRED households ranked by equivalised disposable income					All non-retired households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Education ..	1 760	1 300	1 040	760	450	1 060
National health service ..	1 020	1 010	980	820	730	910
Housing subsidy ⁽¹⁾ ..	140	90	40	30	10	60
Travel subsidies ..	30	30	40	50	50	40
School meals and welfare milk ..	110	30	20	10	10	30
Total ..	3 060	2 460	2 120	1 670	1 250	2 110
Benefits in kind as a percentage of post-tax income						
..	80	33	20	12	6	19

1 Does not include tax relief at source on mortgage payments. These are taken into account in the income tax payments shown in Table F.

Housing subsidy is the sum of Exchequer subsidy and local authority determined rate fund contributions to the housing revenue account. Thus housing subsidy as defined here has been 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 subsidy is highest. In these articles, tax relief on mortgage interest is treated as an adjustment to income tax, not as part of the housing subsidy analysed in Table H.

Percentage shares of total household income and Gini coefficients⁽¹⁾ for NON-RETIRED households, 1989

TABLE J

	Percentage shares of total equivalised income for NON-RETIRED households ranked by equivalised disposable income			
	Original income	Gross income	Disposable income	Post-tax income
Quintile group				
Bottom ..	3.6	7.0	7.5	6.5
2nd ..	12	13	13	12
3rd ..	17	17	17	17
4th ..	24	23	23	23
Top ..	43	40	39	42
All non-retired households	100	100	100	100
Decile group				
Bottom ..	1.0	2.8	3.0	2.4
Top ..	27	25	24	26
Gini coefficient (percent) ..	40	33	32	36

1 This is a measure of the dispersion of each definition of income. Unlike the percentage shares analysis where the household incomes are ranked only once, the Gini coefficient calculation needs a separate ranking for each income definition. For example, the coefficient for original income is produced by first equivalising the original income of all the households, then this distribution is ranked and this ranked distribution is used to calculate the coefficient.

Travel subsidies cover the passenger element of the grants made to various public operations covering both buses and railways. The use of public transport by non-retired households is partly related to the need to travel to work and thus to the number of economically active people in a household and so the combined effect of these travel subsidies increases over the income distribution.

Table H shows that taken together the absolute values of these benefits in kind clearly decline as household income increases. As a proportion of post-tax income, benefits decrease from 80 per cent in the lowest quintile group to 6 per cent in the highest quintile group, indicating that this expenditure contributes to the reduction in income inequality.

Summary

The overall effect of the various stages of the tax-benefits system on non-retired households is summarised in Table J. Households in the highest quintile group receive 43 per cent of all (equivalised) original income, compared with 3.6 per cent received by the lowest quintile group. However, after direct taxes and benefits are taken into account, the share of the lowest quintile group rises to 7.5 per

Average incomes, taxes and benefits by the number of economically active people per NON-RETIRED household, 1989

TABLE K

	Number of economically active people ⁽¹⁾ per household				All non-retired households
	None	One	Two	Three or more	
<i>Number of households in the sample</i>	605	2017	2222	640	5484
Average per household (£ per year)					
Original income	1 410	12 650	21 150	27 100	16 540
<i>plus cash benefits</i>	4 240	1 520	780	830	1 440
Gross income	5 650	14 170	21 920	27 940	17 980
<i>less direct taxes⁽²⁾ & employees' NIC</i> ..	570	3 000	4 600	5 920	3 720
Disposable income	5 080	11 170	17 330	22 020	14 260
<i>less indirect taxes</i>	1 260	2 290	3 310	4 710	2 870
Post-tax income	3 820	8 880	14 020	17 310	11 390
<i>plus benefits in kind</i>	2 840	1 830	2 050	2 530	2 110
Final income	6 660	10 700	16 060	19 840	13 500
Gini coefficients (percent)					
<i>Equivalised original income</i>	88	40	31	24	40
<i>Equivalised gross income</i>	27	34	29	22	33
<i>Equivalised disposable income</i>	28	32	28	21	32
<i>Equivalised post-tax income</i>	36	37	32	25	36

- 1 Economically active people comprise employees, the self employed and others not in employment but who are seeking or intending, when able, to seek work.
 2 These are income tax (which is after tax relief at source on mortgage interest and life assurance premiums) and gross domestic rates/Community charge.

cent and that of the highest falls to 39 per cent. Cash benefits are the major factor underlying these changes, causing the Gini coefficient to fall from 40 per cent based on original income to 33 per cent based on gross income. Income tax, employees' National Insurance contributions and rates produced a further reduction in inequality, but payment of indirect taxes increases inequality.

Economic activity

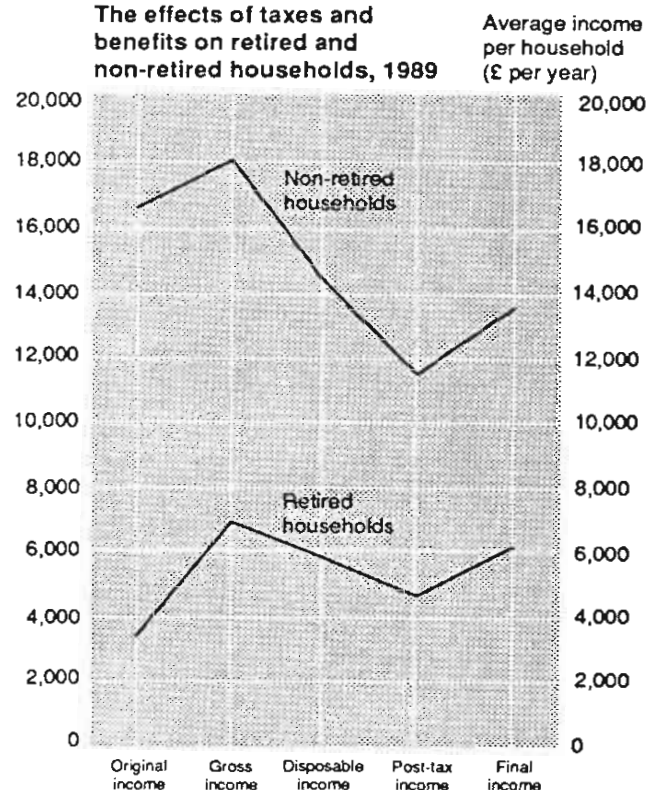
As already mentioned, the size of original income is largely determined by the number of economically active people in the household - even though someone may be defined as economically active if they have been out of work for up to a year as long as they are seeking work. This relationship between income and economic activity amongst non-retired households is explored further in Table K, in which households are classified according to the number of economically active people they contain.

Original income ranges from an average of £1,410 per annum in households where there are no economically active people to an average of £27,100 for households where there are three or more. Cash benefits are concentrated in households where no-one is economically active and here they form 75 per cent of gross income; but they remain important, at 11 per cent of gross income, for those where one household member is economically active. This latter group will contain a number of households where no-one is currently in work.

Not only does average original income differ widely between the four households groups in Table K, but there is also a considerable difference in the degree of variation of income within the groups. As measured by the Gini coefficient, variability in original income is

CHART 4

The effects of taxes and benefits on retired and non-retired households, 1989



very high amongst households where no-one is economically active but where two or more persons are economically active the variability is considerably less. Equally, the tax-benefit system has the effect of substantially reducing inequality between the different types of households within the economically inactive group. This results largely from the diverse nature of the economically inactive group, which ranges from single parents with young children, single full-time students, the disabled, and households where no member has been able to find work during the 12 months prior to interview, to a small number of households where income from other sources such as investments means that they have no need to work.

RESULTS FOR RETIRED HOUSEHOLDS

Retired households have quite distinct income and expenditure patterns and so the tax-benefit system affects them in a different way from non-retired households (Table L). Few retired households

have substantial original income; those who do are concentrated in the top two quintile groups and are receiving occupational pensions. The majority of retired households are dependent on cash benefits, in the form of state retirement pensions and income-related benefits such as Housing Benefits and Income Support to pensioners.

Cash benefits form a very high proportion of gross income for all but the better-off retired households. However, unlike non-retired households, the bulk of these cash benefits are paid from the National Insurance Fund into which the recipients will have made contributions throughout their working lives.

People over pensionable age do not pay National Insurance contributions so the small payments recorded are made by non-retired people living in households defined as retired (see Appendix 2 paragraph 7 for details of definition). All households except those in the highest quintile group of retired households pay very little

Effects of taxes and benefits on RETIRED households, 1989

TABLE L

	Quintile groups of RETIRED households ranked by equivalised disposable income					All retired house- holds
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Original income	430	700	1 080	3 190	11 330	3 340
<i>plus</i> cash benefits						
Contributory						
Retirement pension	2 570	2 880	2 700	2 740	2 800	2 740
Sickness/ injury related	30	60	80	210	220	120
Unemployment benefit	20	10	-	10	-	10
Other	30	40	30	40	30	40
Non-contributory						
Income support	100	120	90	100	30	90
Child benefit	10	-	-	-	-	-
Housing benefit	180	520	640	300	40	340
Sickness/ disablement related	10	70	160	280	220	150
Other	40	40	20	40	40	40
Gross income	3 420	4 440	4 800	6 910	14 710	6 860
<i>less</i> income tax ⁽¹⁾	50	60	90	430	2 280	580
<i>less</i> employees' NIC	-	-	-	10	30	10
<i>less</i> domestic rates/Community charge (gross)..	520	490	480	550	710	550
Disposable income	2 850	3 890	4 220	5 930	11 700	5 720
<i>less</i> indirect taxes						
VAT	260	240	280	450	840	410
Tobacco duty	60	110	90	110	100	90
Other taxes on final goods & services	220	210	200	340	560	310
Intermediate taxes	240	220	230	330	540	310
Post-tax income	2 080	3 110	3 420	4 690	9 660	4 590
<i>plus</i> benefits in kind						
Education	50	20	40	-	10	20
National health service	1 490	1 390	1 290	1 360	1 340	1 370
Housing subsidy ⁽²⁾	40	120	150	90	20	80
Travel subsidies	50	60	50	60	50	60
Final income	3 710	4 710	4 950	6 200	11 080	6 130

1 After tax relief at source on mortgage interest and life assurance premiums.

2 Does not include tax relief at source on mortgage payments, which is included in the income tax payments shown above.

income tax, because their income is unlikely to exceed their tax allowances unless they have significant income from investments or occupational pensions in addition to their state retirement pension. The largest indirect tax payment made by retired households is VAT, and the top quintile group pays more than twice as much as the average for all retired households.

Retired households derive significant benefits from health services and, to a lesser extent, the housing subsidy and travel subsidies, though of course virtually none from the education service. Health benefit is spread fairly evenly within the group of retired households, as a result primarily of the attribution method used, but housing subsidy is substantially higher for the middle three quintile groups since they have the highest concentration of public sector tenants. The benefits received by retired households from travel subsidies are mainly for bus travel, particularly in the form of concessionary fares, passes, etc. for senior citizens, and since these are not usually means-tested but depend instead on what sort of scheme is being operated by their local authority, there is no particular relationship with income.

Table M shows the extent to which income inequality amongst retired households is reduced by the tax-benefit system. Cash benefits play by far the largest part in bringing about this reduction and income tax payments make a further, though much smaller, contribution. Payments of indirect taxes result in an increase in inequality.

A comparison of Table M with Table J shows that although the distribution of original income amongst retired households is much more unequal than that within the non-retired household group, the distribution of post-tax income is more equal amongst the retired than amongst the non-retired. Chart 4 illustrates the different impact which the tax-benefits system has on retired and non-retired households.

Percentage shares of total household income and Gini coefficients¹⁾ for RETIRED households, 1989

TABLE M

	Percentage shares of total equivalised income for RETIRED households ranked by equivalised disposable income			
	Original income	Gross income	Disposable income	Post-tax income
Quintile group				
Bottom	2.7	10.7	10.7	9.7
2nd	4	13	14	14
3rd	7	15	16	16
4th	19	20	20	20
Top	67	41	39	40
<hr/>				
All households	100	100	100	100
<hr/>				
Decile group				
Bottom	1.0	4.9	4.7	4.1
Top	47	27	25	26
<hr/>				
Gini coefficient (percent)	68	30	28	31

¹ This is a measure of the dispersion of each definition of income. Unlike the percentage shares analysis where the household incomes are ranked only once, the Gini coefficient calculation needs a separate ranking for each income definition. For example, the coefficient for original income is produced by first equivalising the original income of all the households, then this distribution is ranked and this ranked distribution is used to calculate the coefficient.

APPENDIX 1

Detailed tables for 1989, with fine breakdown of income components for quintile and decile groups, and results for different types of household

CONTENTS

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General government expenditure in 1989

TABLE 1 (Appendix 1)

	£ million	Percentage of total expenditure
Allocated expenditure⁽¹⁾		
Allocated cash benefits		
Contributory (National Insurance, etc)		
Retirement	20 550	10.5
Widows and guardians	870	0.4
Unemployment	810	0.4
Sickness/ Statutory sick pay	1 160	0.6
Invalidity	3 840	2.0
Maternity/ Statutory maternity pay	310	0.2
Disablement	470	0.2
Other	220	0.1
Non-contributory		
Family benefits	5 430	2.8
Supplementary benefits	7 740	3.9
War pensions	620	0.3
Other	2 960	1.5
Student maintenance grants ⁽²⁾	900	0.5
Rent rebates and allowances	3 980	2.0
Allocated benefits in kind		
Health services	23 890	12.2
Education	21 760	11.1
School meals and welfare milk	570	0.3
Housing subsidy	1 530	0.8
Travel subsidies ⁽³⁾	1 070	0.5
	98 670	50.3
Unallocated expenditure		
Other current expenditure	63 990	32.6
Capital expenditure	11 740	6.0
Debt interest	18 560	9.5
Non-trading capital consumption	3 290	1.7
Total expenditure	196 260	100.0

1 Including benefits to people not living in private households. It is not possible (for the reasons given in Appendix 2, paragraph 1) to allocate all of Government expenditure to households.

2 Estimated.

3 Including concessionary fares expenditure.

Source: United Kingdom National Accounts, 1990 edition, Table 9.4

Financing of general government expenditure in 1989

TABLE 2 (Appendix 1)

	£ million	Percentage of total financing
Allocated financing ⁽¹⁾		
Income tax ⁽²⁾	47 230	24.1
Employees' and self-employed NI contributions	15 050	7.7
Community charge	620	0.3
Domestic rates (net of rebates)	9 640	4.9
Taxes on final goods and services		
VAT	22 690	11.6
Duty on beer and cider	2 020	1.0
Duty on wines and spirits	2 100	1.1
Duty on tobacco	4 800	2.4
Duty on hydrocarbon oils	4 020	2.0
Car tax and vehicle excise duty	2 660	1.4
Other	2 900	1.5
Taxes and NI contributions on intermediate goods and services		
Employers' NI contributions	5 850	3.0
Commercial and industrial rates	4 790	2.4
Duty on hydrocarbon oils	2 330	1.2
VAT	1 610	0.8
Vehicle excise duty	620	0.3
Other	660	0.3
	129 590	66.0
Unallocated financing		
Employers' NI contributions not allocated	11 980	6.1
Indirect taxes		
Commercial and industrial rates not allocated	5 570	2.8
Other taxes on expenditure not allocated		
VAT	7 650	3.9
Duty on hydrocarbon oils	2 220	1.1
Other	3 850	2.0
Other taxes		
Corporation tax	21 450	10.9
Petroleum revenue tax	1 000	0.5
Taxes on capital	4 170	2.1
Other receipts ⁽³⁾	12 470	6.4
Non-trading capital consumption	3 290	1.7
Government borrowing requirement	-6 990	-3.6
Total financing	196 260	100.0

1 Including taxes paid by people not living in private households.

2 Net of tax relief at source on mortgage interest and life assurance premiums.

3 Receipts of rent, royalties and licence fees on oil and gas production, interest, dividends, trading income and miscellaneous transactions (net).

Source: United Kingdom National Accounts, 1990 edition, Table 9.1

Average incomes, taxes and benefits, 1989

By quintile groups of households

TABLE 3 (Appendix 1)

	Quintile groups of households ranked by equivalised disposable income					All households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Quintile points (<i>equivalised £</i>)		5 158	7 513	10 498	14 981	
Number of households in the sample ..	1 482	1 482	1 482	1 482	1 482	7 410
Original income						
Earnings of main earner	771	3 159	8 046	11 726	19 779	8 696
Other earnings	78	523	2 056	4 333	6 639	2 726
Occupational pensions, annuities ..	201	607	811	844	1 289	750
Investment income	160	317	477	766	1 916	727
Other income	75	156	185	208	424	210
Total	1 284	4 762	11 575	17 876	30 048	13 109
Direct benefits in cash						
Contributory						
Retirement pension	1 448	1 381	693	417	266	841
Unemployment benefit	55	36	35	33	12	34
Invalidity pension and allowance ..	127	169	141	68	40	109
Statutory sick pay	8	15	34	45	29	26
Industrial injury disablement benefit ..	4	15	15	16	6	11
Sickness, industrial injury benefit ..	15	12	11	12	3	11
Widows' benefits	38	44	46	30	33	38
Maternity/ Statutory maternity pay ..	2	7	14	16	15	11
Miscellaneous contributory benefits ..	9	9	4	3	2	5
Non-contributory						
Income support/ Supplementary benefit ..	657	318	144	63	11	239
Child benefit	253	236	293	227	158	233
Housing benefit	511	412	74	24	7	206
Invalid care allowance	2	9	10	6	2	6
Attendance allowance	6	67	37	19	7	27
Mobility allowance	7	38	54	24	18	28
War pensions	4	10	19	14	14	12
Severe disablement allowance	36	91	48	29	12	43
Student maintenance awards	65	45	21	25	14	34
Government training schemes	41	36	50	30	5	32
Family credit/ income supplement ..	33	36	9	4	-	16
Other non-contributory benefits	21	20	15	8	5	14
Total cash benefits	3 343	3 007	1 765	1 113	659	1 978
Gross income	4 628	7 769	13 341	18 989	30 707	15 087
Direct taxes and Employees' NIC						
Income tax	151	540	1 607	2 754	5 353	2 081
less: Tax relief at source ⁽¹⁾	36	74	227	367	606	262
Employees' NI contributions	51	232	651	1 004	1 280	644
Domestic rates/Community charge (gross) ..	503	519	577	623	707	586
Total	670	1 216	2 607	4 013	6 735	3 048
Disposable income	3 958	6 553	10 733	14 976	23 972	12 039
Equivalised disposable income	4 081	6 213	8 963	12 517	22 213	10 797
(Standard error)	42	71	98	132	401	114)
Indirect taxes						
Taxes on final goods and services						
VAT	374	565	947	1 229	1 701	963
Duty on tobacco	170	206	247	236	195	211
Duty on beer and cider	35	55	99	129	128	89
Duty on wines	7	12	22	36	73	30
Duty on spirits	28	39	58	81	106	62
Duty on hydrocarbon oils	68	101	185	240	270	173
Car tax	7	20	46	49	82	41
Vehicle excise duty	36	50	94	116	128	85
Television licences	47	51	58	60	60	55
Stamp duty on house purchase	7	10	25	36	63	28
Customs' duties	20	28	42	53	65	42
Betting taxes	25	30	46	54	54	42
Other	9	11	17	18	20	15
Intermediate taxes						
Commercial and industrial rates	89	119	177	223	295	181
Employers' NI contributions	103	140	207	263	351	213
Duty on hydrocarbon oils	44	58	81	101	131	83
Vehicle excise duty	11	14	20	26	34	21
Other	43	57	85	105	136	85
Total indirect taxes	1 122	1 567	2 460	3 054	3 893	2 419
Post-tax income	2 836	4 986	8 274	11 921	20 079	9 619
Benefits in kind						
Education	915	854	911	808	464	790
National health service	1 228	1 183	1 040	930	785	1 033
Housing subsidy	113	120	61	31	14	68
Rail travel subsidy	9	10	12	23	38	18
Bus travel subsidy	35	34	24	19	14	25
School meals and welfare milk	68	23	21	10	8	26
Total	2 368	2 225	2 069	1 820	1 322	1 961
Final income	5 204	7 211	10 343	13 742	21 401	11 580

¹ On mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1989

By decile groups of households

TABLE 4 (Appendix 1)

	Decile groups of 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 £)	4 267	5 158	6 137	7 513	8 899	10 498	12 370	14 981	19 206		
Number of households in the sample	741	741	741	741	741	741	741	741	741	741	7410
Original income											
Earnings of main earner	559	982	1 693	4 626	7 086	9 006	10 845	12 607	15 096	24 463	8 696
Other earnings	56	99	224	822	1 585	2 527	3 599	5 068	5 960	7 318	2 726
Occupational pensions, annuities	132	270	486	728	873	749	824	863	1 167	1 411	750
Investment income	138	182	268	367	462	491	719	813	1 115	2 717	727
Other income	95	55	126	186	118	253	202	213	350	497	210
Total	981	1 588	2 797	6 728	10 124	13 026	16 188	19 564	23 688	36 407	13 109
Direct benefits in cash											
Contributory											
Retirement pension	1 218	1 677	1 692	1 069	777	609	493	341	295	237	841
Unemployment benefit	72	39	22	50	37	33	34	33	21	4	34
Invalidity pension and allowance	85	170	141	196	173	110	105	31	59	22	109
Statutory sick pay	3	14	7	24	33	35	43	46	30	28	26
Industrial injury disablement benefit	1	7	13	18	16	14	18	14	5	7	11
Sickness, industrial injury benefit	11	19	17	7	7	15	16	8	5	2	11
Widows' benefits	38	38	38	50	44	47	27	33	11	54	38
Maternity/ Statutory maternity pay	3	1	5	9	12	16	11	21	10	21	11
Miscellaneous contributory benefits	7	11	10	8	6	3	4	2	2	3	5
Non-contributory											
Income support/Supplementary benefit	740	575	323	314	176	112	80	46	18	4	239
Child benefit	295	210	182	290	305	281	254	200	176	140	233
Housing benefit	427	595	586	239	98	50	35	13	10	4	206
Invalid care allowance	2	2	7	11	16	3	9	4	2	2	6
Attendance allowance	5	7	63	71	36	39	24	14	9	6	27
Mobility allowance	3	11	22	54	61	47	24	24	32	3	28
War pensions	1	8	9	11	14	24	15	13	18	9	12
Severe disablement allowance	20	52	100	83	59	36	37	22	18	5	43
Student maintenance awards	67	63	31	59	18	25	27	23	22	6	34
Government training schemes	46	37	39	34	51	49	39	21	3	6	32
Family credit/ income supplement	39	27	38	35	10	7	6	2	-	-	16
Other non-contributory benefits	17	25	10	30	23	6	9	6	7	4	14
Total cash benefits	3 100	3 586	3 353	2 661	1 971	1 559	1 311	915	751	568	1 978
Gross income	4 081	5 175	6 150	9 389	12 096	14 585	17 499	20 479	24 439	36 975	15 087
Direct taxes and Employees' NIC											
Income tax	153	149	272	808	1 402	1 811	2 444	3 064	3 984	6 723	2 081
less: Tax relief at source (1)	40	32	38	110	190	265	311	424	528	683	262
Employees' NI contributions	41	62	117	346	555	747	902	1 106	1 239	1 321	644
Domestic rates/Community charge (gross)	509	497	493	544	573	582	619	627	678	736	586
Total	663	676	844	1 588	2 340	2 874	3 653	4 373	5 372	8 097	3 048
Disposable income	3 417	4 498	5 305	7 802	9 756	11 711	13 846	16 106	19 067	28 877	12 039
Equivalised disposable income	3 434	4 727	5 597	6 828	8 232	9 693	11 419	13 615	16 818	27 608	10 797
(Standard error)	52	42	58	89	94	109	122	152	195	694	114)
Indirect taxes											
Taxes on final goods and services											
VAT	394	355	439	691	856	1 039	1 127	1 330	1 587	1 815	963
Duty on tobacco	168	172	175	237	256	238	242	231	230	160	211
Duty on beer and cider	34	36	39	71	89	110	127	130	132	124	89
Duty on wines	7	6	9	15	21	24	32	41	58	89	30
Duty on spirits	32	24	29	49	57	59	78	83	104	107	62
Duty on hydrocarbon oils	73	62	72	131	170	201	230	249	271	270	173
Car tax	7	6	14	26	37	55	38	60	82	83	41
Vehicle excise duty	38	33	35	65	86	102	110	123	127	128	85
Television licences	47	47	48	55	57	59	59	61	60	59	55
Stamp duty on house purchase	9	5	6	14	21	28	31	41	53	73	28
Customs' duties	21	20	23	33	39	45	49	58	64	65	42
Betting taxes	27	22	24	36	46	46	54	54	52	56	42
Other	9	8	10	13	18	16	19	16	19	20	15
Intermediate taxes											
Commercial and industrial rates	93	85	97	141	164	190	213	234	272	319	181
Employers' NI contributions	108	99	115	166	192	223	250	276	322	380	213
Duty on hydrocarbon oils	46	42	48	67	76	87	98	105	123	139	83
Vehicle excise duty	11	10	12	17	19	22	25	27	32	36	21
Other	45	41	47	68	79	91	99	110	127	146	85
Total indirect taxes	1 171	1 073	1 242	1 892	2 283	2 636	2 880	3 229	3 716	4 070	2 419
Post-tax income	2 246	3 425	4 063	5 910	7 473	9 075	10 965	12 877	15 351	24 807	9 619
Benefits in kind											
Education	1 141	690	616	1 092	935	887	904	711	556	371	790
National health service	1 238	1 219	1 203	1 164	1 032	1 048	985	875	817	753	1 033
Housing subsidy	96	130	140	100	69	53	37	26	21	6	68
Rail travel subsidy	12	6	9	10	10	14	21	25	33	43	18
Bus travel subsidy	28	41	39	30	25	23	20	17	15	13	25
School meals and welfare milk	88	47	23	22	20	23	12	7	10	6	26
Total	2 603	2 132	2 031	2 419	2 091	2 048	1 980	1 661	1 452	1 191	1 961
Final income	4 850	5 558	6 093	8 329	9 563	11 123	12 945	14 538	16 803	25 999	11 580

1 On mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1989

By quintile groups within household type

TABLE 5 (Appendix 1)

	Quintile groups of households ranked by equivalised disposable income					All groups
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
(i) 1 adult retired						
Quintile points (<i>equivalised £</i>)		4 198	5 086	5 652	7 396	
Number of households in the sample	202	201	202	201	202	1008
Original income	263	457	461	1 253	6 896	1 868
Direct benefits in cash						
Contributory						
Retirement pension	2 129	2 202	2 223	2 215	2 264	2 207
Sickness/ injury related.. ..	6	24	19	26	117	38
Unemployment benefit.. .. .	6	-	-	-	-	1
Other	45	48	36	46	51	45
Total contributory	2 185	2 274	2 278	2 286	2 432	2 291
Non-contributory						
Income support/ Supplementary benefit ..	84	85	116	83	42	82
Child benefit	-	2	-	-	-	-
Housing benefit	132	510	875	711	87	463
Sickness/ disablement related	-	12	41	75	150	56
Other	11	4	-	31	26	14
Total non-contributory	227	613	1 032	900	305	615
Gross income	2 675	3 344	3 771	4 440	9 632	4 774
Income tax ⁽¹⁾ and Employees' NIC.. ..	38	47	45	143	1 509	357
Domestic rates/Community charge (gross) ..	506	450	457	479	597	498
Disposable income	2 131	2 846	3 269	3 818	7 526	3 919
<i>Equivalised disposable income</i>	3 487	4 657	5 359	6 258	12 338	6 422
Taxes on final goods and services.. ..	390	303	362	426	925	481
Intermediate taxes	197	156	163	195	368	216
Post-tax income	1 545	2 387	2 744	3 196	6 234	3 222
Benefits in kind						
Education	6	6	-	-	-	2
National health service.. .. .	1 229	1 152	1 085	1 043	917	1 085
Housing subsidy	30	108	177	159	40	103
Travel subsidies	36	44	46	52	39	43
School meals and welfare milk	-	-	-	-	-	-
Final income	2 846	3 697	4 053	4 451	7 230	4 456
(ii) 2 or more adults retired						
Quintile points (<i>equivalised £</i>)		4 518	5 297	6 655	9 068	
Number of households in the sample	184	183	184	183	184	918
Original income	649	1 134	2 494	5 242	15 264	4 960
Direct benefits in cash						
Contributory						
Retirement pension	3 317	3 560	3 362	3 201	3 180	3 324
Sickness/ injury related.. ..	68	123	264	300	299	211
Unemployment benefit.. .. .	35	10	15	13	1	15
Other	17	29	29	32	16	25
Total contributory	3 438	3 722	3 670	3 545	3 497	3 574
Non-contributory						
Income support/ Supplementary benefit ..	148	138	78	81	34	96
Child benefit	22	6	2	-	2	6
Housing benefit	286	407	187	81	24	197
Sickness/ disablement related	64	139	415	283	352	251
Other	73	78	25	81	37	59
Total non-contributory	593	768	707	525	449	608
Gross income	4 680	5 624	6 871	9 313	19 209	9 143
Income tax ⁽¹⁾ and Employees' NIC.. ..	71	81	263	743	3 076	848
Domestic rates/Community charge (gross) ..	550	530	538	618	800	607
Disposable income	4 058	5 013	6 070	7 953	15 334	7 688
<i>Equivalised disposable income</i>	3 909	4 886	5 885	7 747	14 499	7 388
Taxes on final goods and services.. ..	788	827	1 048	1 319	1 902	1 177
Intermediate taxes	299	291	379	439	678	417
Post-tax income	2 971	3 895	4 643	6 194	12 753	6 094
Benefits in kind						
Education	91	66	48	-	16	44
National health service.. .. .	1 874	1 666	1 666	1 582	1 671	1 692
Housing subsidy	49	122	81	45	12	62
Travel subsidies	78	79	65	58	72	70
School meals and welfare milk	9	-	-	-	-	2
Final income	5 071	5 828	6 503	7 878	14 525	7 963

¹ After tax relief at source on mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1989

By quintile groups within household type

TABLE 5 (Appendix 1) (continued)

	Quintile groups of households ranked by equivalised disposable income					All groups
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
(iii) 1 adult non-retired						
Quintile points (equivalised £)		5 348	8 886	12 617	18 539	
Number of households in the sample	166	165	166	165	166	828
Original income	727	3 861	7 917	12 057	20 840	9 083
Direct benefits in cash						
Contributory						
Retirement pension	54	202	172	50	39	104
Sickness/ injury related	194	269	51	50	12	115
Unemployment benefit	67	52	28	6	3	31
Other	126	160	140	90	86	120
Total contributory	441	684	392	196	140	370
Non-contributory						
Income support/ Supplementary benefit	795	266	79	18	-	232
Child benefit	-	-	-	-	-	-
Housing benefit	666	389	64	17	-	227
Sickness/ disablement related	77	159	42	78	-	71
Other	233	31	11	5	13	59
Total non-contributory	1 772	844	196	118	13	589
Gross income	2 940	5 388	8 505	12 371	20 993	10 042
Income tax ⁽¹⁾ and Employees' NIC	121	593	1 540	2 570	4 399	1 845
Domestic rates/Community charge (gross)	412	420	470	475	519	459
Disposable income	2 407	4 375	6 495	9 326	16 075	7 738
Equivalised disposable income	3 947	7 172	10 647	15 288	26 353	12 685
Taxes on final goods and services	700	797	1 085	1 491	1 889	1 192
Intermediate taxes	200	255	354	445	588	369
Post-tax income	1 507	3 324	5 055	7 390	13 598	6 177
Benefits in kind						
Education	614	327	170	43	-	231
National health service	292	327	317	274	266	295
Housing subsidy	129	124	76	44	22	79
Travel subsidies	29	23	17	28	34	26
School meals and welfare milk	-	-	-	-	2	-
Final income	2 571	4 124	5 636	7 778	13 921	6 808
(iv) 2 adults non-retired						
Quintile points (equivalised £)		8 092	11 137	14 595	19 440	
Number of households in the sample	316	315	316	315	316	1 578
Original income	4 669	10 803	15 929	21 523	36 943	17 976
Direct benefits in cash						
Contributory						
Retirement pension	561	561	252	144	174	338
Sickness/ injury related	545	299	173	64	63	229
Unemployment benefit	95	35	34	11	2	35
Other	50	80	42	2	58	46
Total contributory	1 251	975	500	221	297	649
Non-contributory						
Income support/ Supplementary benefit	435	123	39	10	-	122
Child benefit	-	-	-	1	4	1
Housing benefit	315	96	27	5	3	89
Sickness/ disablement related	337	246	68	48	29	146
Other	146	55	38	12	4	51
Total non-contributory	1 233	520	172	77	41	409
Gross income	7 152	12 298	16 602	21 821	37 281	19 033
Income tax ⁽¹⁾ and Employees' NIC	754	1 960	3 040	4 281	8 061	3 620
Domestic rates/Community charge (gross)	510	549	593	628	725	601
Disposable income	5 888	9 789	12 969	16 911	28 494	14 812
Equivalised disposable income	5 758	9 571	12 767	16 700	28 223	14 606
Taxes on final goods and services	1 326	1 736	2 169	2 747	3 132	2 222
Intermediate taxes	389	503	637	801	1 029	672
Post-tax income	4 174	7 551	10 162	13 362	24 334	11 919
Benefits in kind						
Education	295	49	59	47	67	103
National health service	772	789	651	583	607	680
Housing subsidy	92	68	37	12	1	42
Travel subsidies	29	36	40	44	62	42
School meals and welfare milk	-	-	-	-	-	-
Final income	5 362	8 493	10 949	14 049	25 072	12 787

¹ After tax relief at source on mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1989

By quintile groups within household type

TABLE 5 (Appendix 1) (continued)

	Quintile groups of households ranked by equivalised disposable income					All groups
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
(v) 3 or more adults non-retired						
Quintile points (equivalised £)		8 244	10 730	12 780	15 767	
Number of households in the sample	127	126	127	126	127	633
Original income	8 860	16 541	21 946	27 228	41 072	23 133
Direct benefits in cash						
Contributory						
Retirement pension	637	608	388	175	80	378
Sickness/ injury related	511	460	364	127	142	321
Unemployment benefit	123	52	56	48	26	61
Other	71	5	60	11	27	35
Total contributory	1 343	1 125	868	361	276	795
Non-contributory						
Income support/ Supplementary benefit	613	156	110	66	49	199
Child benefit	20	12	9	3	9	11
Housing benefit	302	42	10	7	5	73
Sickness/ disablement related	313	400	263	87	51	223
Other	575	280	177	165	45	248
Total non-contributory	1 823	889	569	328	158	754
Gross income	12 026	18 556	23 384	27 917	41 507	24 682
Income tax ⁽²⁾ and Employees' NIC	1 428	3 016	4 260	5 223	8 389	4 464
Domestic rates/Community charge (gross)	567	576	631	708	770	651
Disposable income	10 030	14 964	18 492	21 986	32 348	19 567
Equivalised disposable income	6 425	9 489	11 690	14 090	21 013	12 544
Taxes on final goods and services	2 096	2 843	3 453	3 917	4 403	3 342
Intermediate taxes	633	778	949	1 079	1 309	950
Post-tax income	7 300	11 342	14 090	16 990	26 635	15 275
Benefits in kind						
Education	2 683	377	485	458	437	889
National health service	1 145	1 153	1 039	967	949	1 051
Housing subsidy	94	76	47	45	32	59
Travel subsidies	80	77	80	77	82	79
School meals and welfare milk	1	-	-	-	-	-
Final income	11 303	13 025	15 741	18 538	28 136	17 353
(vi) 1 adult with children⁽¹⁾						
Quintile points (equivalised £)		4 090	4 781	5 685	8 005	
Number of households in the sample	63	62	63	62	63	313
Original income	611	460	1 134	3 751	13 108	3 824
Direct benefits in cash						
Contributory						
Retirement pension	-	-	-	-	-	-
Sickness/ injury related	79	58	64	59	32	58
Unemployment benefit	-	40	19	-	-	12
Other	25	35	210	292	239	160
Total contributory	103	133	292	351	271	230
Non-contributory						
Income support/ Supplementary benefit	1 447	2 216	1 784	964	470	1 375
Child benefit	863	810	706	791	696	773
Housing benefit	779	1 178	1 132	642	256	797
Sickness/ disablement related	-	-	-	114	-	23
Other	125	97	124	519	77	188
Total non-contributory	3 215	4 301	3 746	3 030	1 499	3 155
Gross income	3 929	4 893	5 172	7 132	14 878	7 209
Income tax ⁽²⁾ and Employees' NIC	58	-1	21	301	1 716	421
Domestic rates/Community charge (gross)	511	490	456	535	599	518
Disposable income	3 360	4 404	4 695	6 297	12 563	6 270
Equivalised disposable income	3 187	4 443	5 194	6 621	12 979	6 491
Taxes on final goods and services	677	713	840	924	1 922	1 017
Intermediate taxes	279	244	305	375	650	371
Post-tax income	2 403	3 447	3 550	4 997	9 991	4 882
Benefits in kind						
Education	2 016	1 641	1 510	1 945	1 801	1 782
National health service	996	1 015	856	978	718	912
Housing subsidy	192	240	250	162	58	180
Travel subsidies	13	16	19	18	25	18
School meals and welfare milk	320	251	172	85	42	174
Final income	5 940	6 609	6 358	8 184	12 635	7 948

1 This group is smaller than the category of "one parent families" because some of these families will be contained in larger household types.

2 After tax relief at source on mortgage interest and life assurance premiums.

Average Incomes, taxes and benefits, 1989

By quintile groups within household type

TABLE 5 (Appendix 1) (continued)

	Quintile groups of households ranked by equivalised disposable income					All groups
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
(vii) 2 adults with 1 child						
Quintile points (equivalised £)		7 016	9 417	11 893	15 506	
Number of households in the sample	124	124	124	124	124	620
Original income	4 306	11 512	14 870	20 093	32 032	16 563
Direct benefits in cash						
Contributory						
Retirement pension	93	-	37	-	-	26
Sickness/ injury related	205	118	142	19	31	103
Unemployment benefit	89	112	78	72	51	80
Other	35	78	67	117	117	83
Total contributory	422	309	323	208	199	292
Non-contributory						
Income support/ Supplementary benefit	975	202	142	18	12	270
Child benefit	405	391	382	369	346	379
Housing benefit	516	63	15	11	1	121
Sickness/ disablement related	192	58	25	10	28	63
Other	300	110	72	28	51	112
Total non-contributory	2 389	823	636	437	437	944
Gross income	7 117	12 644	15 829	20 738	32 668	17 799
Income tax ⁽¹⁾ and Employees' NIC	566	2 108	2 597	3 708	5 730	2 942
Domestic rates/Community charge (gross)	507	541	543	640	752	596
Disposable income	6 044	9 995	12 689	16 390	26 187	14 261
Equivalised disposable income	5 042	8 306	10 658	13 639	22 159	11 961
Taxes on final goods and services	1 437	1 808	2 032	2 527	2 852	2 131
Intermediate taxes	438	554	629	790	1 008	684
Post-tax income	4 169	7 633	10 028	13 073	22 327	11 446
Benefits in kind						
Education	833	831	847	946	657	823
National health service	1 133	1 111	1 214	1 124	1 145	1 145
Housing subsidy	133	89	28	39	6	59
Travel subsidies	27	25	28	30	41	30
School meals and welfare milk	49	13	14	10	12	20
Final income	6 346	9 702	12 159	15 221	24 188	13 523
(viii) 2 adults 2 children						
Quintile points (equivalised £)		6 910	8 742	11 054	14 465	
Number of households in the sample	159	158	159	158	159	793
Original income	6 767	12 975	16 487	22 164	37 641	19 211
Direct benefits in cash						
Contributory						
Retirement pension	15	-	-	-	-	3
Sickness/ injury related	149	101	56	60	62	85
Unemployment benefit	64	-	24	5	13	21
Other	18	3	24	12	39	19
Total contributory	246	104	105	77	114	129
Non-contributory						
Income support/ Supplementary benefit	692	89	19	-	-	160
Child benefit	747	736	747	733	750	743
Housing benefit	325	33	3	6	-	74
Sickness/ disablement related	49	47	33	19	-	29
Other	182	51	30	42	7	63
Total non-contributory	1 994	957	833	800	758	1 069
Gross income	9 007	14 036	17 425	23 041	38 512	20 409
Income tax ⁽¹⁾ and Employees' NIC	1 073	2 233	2 904	4 255	6 198	3 333
Domestic rates/Community charge (gross)	565	584	639	683	861	666
Disposable income	7 369	11 219	13 882	18 103	31 453	16 410
Equivalised disposable income	5 165	7 870	9 778	12 555	21 760	11 429
Taxes on final goods and services	1 648	1 968	2 113	2 563	3 179	2 294
Intermediate taxes	511	604	684	846	1 143	758
Post-tax income	5 210	8 647	11 084	14 694	27 132	13 358
Benefits in kind						
Education	1 966	2 180	2 053	2 143	1 691	2 006
National health service	1 276	1 169	1 152	1 140	1 193	1 186
Housing subsidy	106	65	23	5	14	42
Travel subsidies	21	16	18	20	37	22
School meals and welfare milk	86	60	68	27	37	56
Final income	8 665	12 138	14 398	18 029	30 104	16 671

¹ After tax relief at source on mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1989

By quintile groups within household type

TABLE 5 (Appendix 1) (continued)

	Quintile groups of households ranked by equivalised disposable income					All groups
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
(ix) 2 adults with 3 or more children						
Quintile points (equivalised £)		4 541	6 714	8 690	11 218	
Number of households in the sample	69	70	69	70	69	347
Original income	2 941	9 072	14 380	19 209	38 177	16 741
Direct benefits in cash						
Contributory						
Retirement pension	-	35	-	-	-	7
Sickness/ injury related	357	40	118	50	23	117
Unemployment benefit	275	100	18	19	22	87
Other	5	17	16	3	25	13
Total contributory	638	192	152	72	71	224
Non-contributory						
Income support/ Supplementary benefit	1 183	575	278	104	-	427
Child benefit	1 294	1 267	1 179	1 204	1 162	1 221
Housing benefit	687	288	50	51	-	215
Sickness/ disablement related	74	139	51	-	53	64
Other	242	248	61	37	9	119
Total non-contributory	3 481	2 516	1 619	1 396	1 223	2 047
Gross income	7 059	11 780	16 151	20 677	39 471	19 012
Income tax ⁽¹⁾ and Employees' NIC	313	1 545	2 546	3 030	7 020	2 887
Domestic rates/Community charge (gross)	474	610	658	744	847	667
Disposable income	6 273	9 625	12 946	16 903	31 604	15 458
Equivalised disposable income	3 601	5 605	7 642	9 981	18 451	9 049
Taxes on final goods and services	1 556	1 857	1 978	3 129	3 172	2 339
Intermediate taxes	461	600	684	993	1 175	783
Post-tax income	4 256	7 168	10 284	12 780	27 257	12 335
Benefits in kind						
Education	3 540	3 447	3 479	3 187	3 364	3 403
National health service	1 903	1 843	1 618	1 481	1 351	1 639
Housing subsidy	156	105	57	7	-	65
Travel subsidies	25	14	47	26	34	29
School meals and welfare milk	358	193	56	89	72	153
Final income	10 237	12 769	15 540	17 571	32 077	17 624
(x) 3 or more adults with children						
Quintile points (equivalised £)		5 926	8 139	10 136	12 878	
Number of households in the sample	74	75	74	75	74	372
Original income	6 503	13 601	19 807	24 834	38 294	20 600
Direct benefits in cash						
Contributory						
Retirement pension	170	299	178	261	100	202
Sickness/ injury related	346	340	175	103	136	220
Unemployment benefit	53	111	46	24	16	50
Other	119	7	48	42	30	49
Total contributory	688	758	447	430	282	522
Non-contributory						
Income support/ Supplementary benefit	1 632	571	386	212	115	582
Child benefit	828	658	532	519	491	605
Housing benefit	493	60	24	22	2	120
Sickness/ disablement related	96	357	126	76	87	149
Other	637	512	313	299	149	382
Total non-contributory	3 686	2 157	1 381	1 127	843	1 838
Gross income	10 878	16 516	21 635	26 392	39 419	22 960
Income tax ⁽¹⁾ and Employees' NIC	1 086	2 208	3 589	4 648	7 858	3 875
Domestic rates/community charge (gross)	590	637	628	723	781	672
Disposable income	9 202	13 671	17 418	21 021	30 780	18 413
Equivalised disposable income	4 545	6 973	9 121	11 310	16 613	9 709
Taxes on final goods and services	2 234	2 635	3 477	3 216	3 995	3 110
Intermediate taxes	667	753	950	960	1 286	923
Post-tax income	6 300	10 283	12 991	16 845	25 498	14 379
Benefits in kind						
Education	3 900	2 884	2 389	2 375	2 654	2 839
National health service	1 605	1 509	1 291	1 290	1 309	1 401
Housing subsidy	155	70	64	29	13	66
Travel subsidies	78	66	41	50	74	62
School meals and welfare milk	194	61	42	27	24	69
Final income	12 232	14 873	16 817	20 616	29 572	18 816

¹ After tax relief at source on mortgage interest and life assurance premiums.

Distribution of households⁽¹⁾ co-operating in the Family Expenditure Survey, 1989

By decile groups of households ranked by equivalised disposable income

TABLE 6 (Appendix 1)

	Retired households		Non-Retired households					All households					
	1 adult	2 or more adults	1 adult	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		
Decile groups of households ranked by equivalised disposable income													
Bottom	222	127	84	56	13	82	34	44	54	25	741		
2nd	212	209	68	52	7	72	31	29	35	26	741		
3rd	273	163	51	57	23	53	27	32	32	30	741		
4th	106	129	56	108	54	38	52	99	47	52	741		
5th	56	96	74	133	64	23	74	128	51	42	741		
6th	44	53	73	172	81	14	88	114	38	64	741		
7th	32	42	88	173	117	9	89	104	38	49	741		
8th	26	33	87	227	121	5	84	102	14	42	741		
9th	20	44	98	270	98	11	74	80	19	27	741		
Top	17	22	149	330	55	6	67	61	19	15	741		
All households	1 008	918	828	1 578	633	313	620	793	347	372	7 410		

¹ See Appendix 2 for definitions of retired households, adults and children.

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 CSO 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 receipts from public corporations: 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. In all, 66 per cent of government financing (including the Borrowing Requirement) and 50 per cent of expenditure are allocated to households in this analysis.

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. 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 survey is conducted by the Office of Population Censuses and Surveys on behalf of the Central Statistical Office who analyse and report on it (prior to July 1989, the FES was the responsibility of the Department of Employment). The Family Expenditure Survey Report for 1989, containing detailed data on household characteristics, income, and expenditure, was published in November 1990. Details of the survey method are set out in 'The Family Expenditure Survey Handbook' by W F F Kemsley, R U Redpath and M Holmes. Both are published by Her Majesty's Stationery Office.

4. The number of households in the United Kingdom responding to the FES in 1989 was 7,410 (about 1 in every 3,000 households). The response rate in Great Britain was 73 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 suggest that older households, households where the head is self-employed, those without children and higher income households, are less likely to co-operate than others (see 'Family Expenditure Survey: a second study of differential response, comparing Census characteristics of FES respondents and non-respondents' by Bob Redpath, *Statistical News* No 72 February 1986 HMSO). In addition response in Greater London is noticeably lower than in other areas. However, at present, the results in this article are based on the responses of those households which actually co-operated in the survey and they are not reweighted. This means that some of the figures differ from those produced by other surveys such as the Survey of Personal Incomes from the Inland Revenue.

5. 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

6. 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.

7. In classifying the households into various types, a **child** (ie 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.

[The definition used in the pre-1987 articles was a person aged under 16].

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.

8. 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'.

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

10. 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 (32 in 1989) 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.

11. Economically active people comprise employees, the self-employed and others not in employment but who are seeking or intending, when able, to seek work. In 1982 there were changes in the FES in the definition relating to economic activity. The effect of these changes is to exclude all those out of employment for more than a year rather than five years. This exclusion applies regardless of the fact that they may still describe themselves as seeking work. Also excluded are those who have not been in paid employment since leaving full-time education unless they have worked within the previous year; certain of the part-time self-employed with very small incomes: and those whose only economic activity is working as mail-order agents or baby-sitters.

Income: redistributive stages

12. Stage one:

Original income plus cash benefits = Gross income.

Stage two:

Gross income minus income tax, employees' National Insurance contributions and domestic rates = Disposable income.

Stage three:

Disposable income minus indirect taxes = Post-tax income.

Stage four:

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

13. The starting point of the analysis is original income. This is the annual 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. Employment income is based on the last payment received before the interview or, where different, the amount usually received. Allowance is made for any periods of absence from work through sickness and unemployment in the preceding 12 months, and for bonuses. Income from self-employment is recorded in the FES for a past period. This is brought up to current levels using the average earnings index. Income from interest, dividends and rent is taken as the amount received in the 12 months before the interview. Income from occupational pensions is based on the last payment received.

14. About 99 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 babysitter, 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 based on the rateable value of the dwelling. This is counted as employment income if the tenancy depends on the job.

15. The next stage of the analysis is to add cash benefits to original income to obtain gross income. This is slightly different to the 'gross normal weekly income' used in the FES Report, mainly because it excludes the imputed rent of owner-occupiers. Cash benefits are:

Contributory:

Retirement pension and Christmas bonus, unemployment benefits, sickness and industrial injury benefit, statutory sick pay, invalidity pension and allowance, industrial injury disablement benefits, widows' benefits, and statutory maternity pay.

Non-contributory:

Supplementary benefit, child benefit, housing benefit, attendance allowance, mobility allowance, war pensions, severe disablement allowance, family income supplement, old persons pension, government training scheme allowances (YTS etc), student maintenance awards, maternity grant.

16. Statutory Sick Pay and Statutory Maternity Pay are classified as cash benefits even though they are paid through the employer.

17. 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 benefit, is based on current rates.

18. Income tax, domestic rates and employees' and self-employed contributions to National Insurance and National Health services are then deducted to give disposable income. Taxes on capital, such as capital gains tax and inheritance tax, are not included in these deductions because there is no clear conceptual basis for doing so, and the relevant data is not available from the FES.

19. The figures for domestic rates include, as well as local authority rates, charges made by water authorities for water, environmental and sewerage services. Rates are shown in full with any rebates given in housing benefit.

[In pre-1987 articles, domestic rates were included in the 'indirect' tax category. They are now deducted in the derivation of disposable income in anticipation of their replacement by the community charge from 1989. The National Accounts system, which strongly influences this article, will show the community charge as a deduction before disposable income is produced].

20. 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 in this way 'at source'. In 1989 there were two 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.

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

- Duties on beer, wines, spirits, tobacco, oil, betting, etc
- Value Added Tax (VAT)
- Customs (import) duties
- Car tax
- Motor vehicle duties
- Driving licenses
- Stamp duties
- Gas levy

22. 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 which is paid by the household is calculated from the household's total expenditure on goods and services subject to VAT.

23. VAT and car tax affect the prices of secondhand cars and are 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 not picked up by the FES.

24. 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 rateable values) and the probability of a household of that type moving in a given year (estimated from the General Household Survey).

25. Indirect taxes on intermediate goods and services are:

- Local authority 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

26. 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.

27. In discussing the incidence of indirect taxes, we have used the terms 'progressive' and 'regressive' to mean taking an increasing or decreasing proportion of income as income rises. The degree to

which a tax is progressive or regressive is strongly affected by the definition of income which the tax is compared with. For example, if indirect taxes were to be compared with gross income (rather than disposable income as in this article), they would appear much more regressive than shown in Table G of this article.

28. For Table G of the main article, we have constructed a measure of expenditure on goods and services which is similar to that used in the Consumers' Expenditure part of the National Accounts. Savings, investments, superannuation contributions and mortgage payments are excluded as well as rates/community charge payments. Imputed rent 'payments' for owner occupiers are included because rent payments are included for households renting their accommodation. We have included payments for house repairs and improvements because VAT is charged on these items. The expenditures on alcohol, tobacco and confectionery have been grossed up to correspond to the grossed-up indirect tax amounts described in paragraph 23 above.

29. 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. Benefits in kind are:

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

30. Education benefit is estimated by the Department of Education and Science 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.

31. 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.

32. Each individual in the FES is allocated a benefit from the National Health Service according to the estimated average use made of the 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.

33. 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 rate funds and 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 gross rateable value of this dwelling. Housing subsidy does not include mortgage interest tax relief, rent rebates and allowances or rate rebates included in housing benefit (see paragraphs 15 and 19 respectively).

34. The rail travel subsidies allocated are those to British Rail passenger operations and the London Underground. 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. A single allocation of the subsidy to inter-city services was made by dividing that subsidy between all households in proportion to their recorded expenditure on rail fares. In making both these allocations allowances are made for the use of rail travel by the business sector, tourists and the institutional part of the personal sector.

35. 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.

36. We must emphasise that the analysis in this article provides only a very 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. 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. And, 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. 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

37. 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, though it is recognised that they are based on what is now rather old expenditure data and that it might be desirable to update them. 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 pending any re-calculation.

38. The equivalence values are given below:

<u>Type of household member</u>	<u>Equivalence value</u>
<u>a. married head of household</u>	
(ie a married couple of 2 adults)	1.00
1st additional adult	0.42
2nd (or more) additional adult	0.36 (per adult)
<u>b. single head of household</u>	
(ie 1 adult)	0.61
1st additional adult	0.46
2nd additional adult	0.42
3rd (or more) additional adult	0.36 (per adult)
<u>c. Child aged:</u>	
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

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 2 children (aged 6 and 9) 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 ($=£20,000/1.86$).

39. 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).

[In pre-1987 articles, three types of ranking were used: the main one was using original income but gross income and disposable income were also used. In addition, the tables showing income shares were re-ranked for each separate income measure].

It is important to note that most monetary values shown in the article are ordinary (ie un-equivalised) £ a year, not equivalised £ a year. Where equivalised £ a year do appear (eg the quintile points in Table 3 of Appendix 1), they are shown in *italics*.

Gini coefficient

40. 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

Diagram A

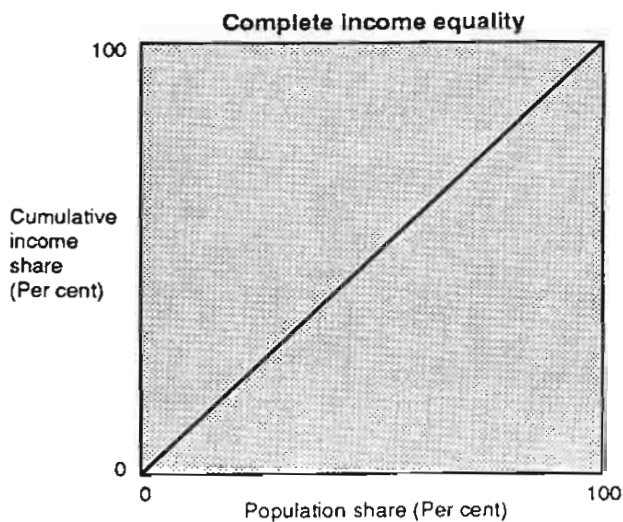
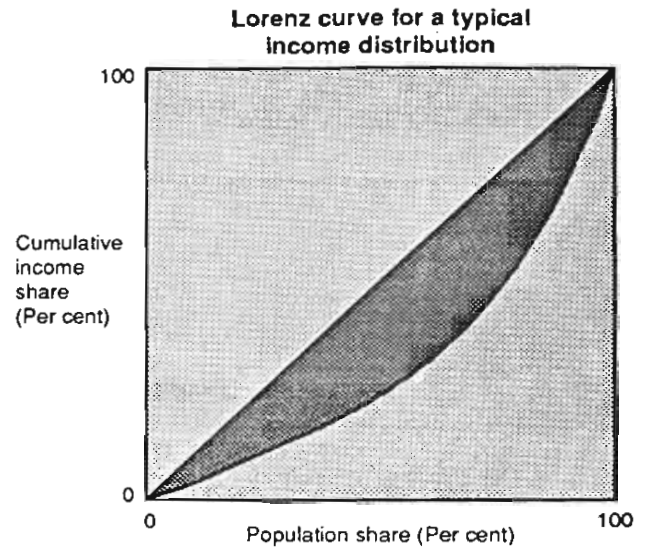


Diagram B



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).

41. 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 equalised income eg the coefficient for original income is calculated after dividing the original income for all the households by their appropriate equivalence values.
[In pre-1987 articles, no such equalisation was used].

42. 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 equalise 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 equalise 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.

Sampling errors and reliability

43. 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, say, the average expenditure of large groups of households on items purchased frequently (when spending does not vary greatly between households). Conversely, it is largest for small groups of households, and for items or services purchased infrequently (for which expenditure varies considerably between households). A broad numerical measure of the amount of variability is provided by the quantity known as the standard error.

44. 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 in Table 1 is given by:

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

where the design factor is 1.22 for 1989, and S^2 is the estimate of the population variance.

This simple formula is applicable to a complete group of households, but for quintile or decile groups a more complex formula is required (see paragraph 46).

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

$$\text{estimate of mean} \pm (1.96 * \text{standard error})$$

where the factor 1.96 corresponds to the 95% confidence interval.

For example: the mean disposable income for all households is £12,039 (see Table 3 in Appendix 1), and its standard error is £140 (from Table 1 below). So the confidence interval for the population value is £12,039 \pm £274 ie about (£11,750 to £12,300). It is very likely that the mean disposable income for the whole population (ie all UK private households) will lie in this range.

46. The standard errors for the household types are larger than for the whole sample, mainly because the sample sizes concerned are smaller. For quintile 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. Precise estimates of standard errors for averages for quintile groups are complicated to produce. As well as the variability of the observations between the quintile points, we should also take account of the randomness which exists because the sample quintile 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 (\bar{x}) calculated between two sample percentiles, Q_1 and Q_2 , corresponding to proportions p_1 and p_2 is:

$$\begin{aligned} & [n(p_2-p_1)]^{-1} * \\ & \{ S^2 \\ & + p_1(x-Q_1)^2 \\ & + (1-p_2)(Q_2-x)^2 \\ & + [p_1(1-p_2)/(p_2-p_1)](Q_2-Q_1)^2 \} \end{aligned}$$

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 44) to give the standard errors shown in the tables for quintile and decile groups.

47. The 'complex' standard errors for quintile and decile groups are quite a bit larger than the simple random sample estimates, as shown below:

Ratio of 'complex' standard error to simple random sample estimate for equalised disposable income, 1989

Decile group		Quintile group	
Bottom	1.65	Bottom	1.78
2nd	4.45	2nd	3.91
3rd	5.75	3rd	4.46
4th	6.21	4th	3.97
5th	6.32	Top	1.42
6th	6.49	All	1.22
7th	6.16		
8th	5.49		
9th	4.43		
Top	1.42		
All	1.22		

For the 'all households' group the ratio merely reflects the fact that the simple random sample figure is multiplied by the design factor (1.22 in 1989) to produce the 'complex' standard error. For the middle quintile group, the quoted standard error is about four times larger than it would have been if we had merely used the simple random sample estimate. The quoted standard errors for the middle decile groups are about six times higher than the simple random sample estimates.

48. Table 2 gives standard errors for quintile groups of households within household type. The standard errors of the top quintile group are often much larger than for the other quintile groups. This is not surprising as, in general, any distribution of incomes has a long

positive tail. The standard errors for the top quintile groups of some household types are so large that it is doubtful whether the averages for these groups are reliable enough to be worth quoting in the tables in Appendix 1.

49. Another aspect of sampling errors and reliability is the variation from year to year. Table 3 gives the standard error of the mean (expressed as a percentage of the mean) for disposable income for the years from 1977 to 1989. The two groups with consistently high proportionate standard errors are one adult with children, and two adults with 3 or more children. Relatively small groups like these are more likely to be strongly influenced by unusually large income and expenditure values.

If the change between years were to be considered, then it is the standard error of the *difference* between years that is relevant. This is about 1.4 times the size of the standard error for a particular year (assuming the two standard errors are about the same) - because the variance of a difference between years equals the sum of the variances for those individual years.

50. This year, for the first time, we have produced estimates for the standard errors of shares of total income (shown in Table 1, Appendix 4). These standard errors have been calculated using the formula for the variance of a ratio, and the results are given in Table 4 below. For example, the top quintile group accounted for 41 per cent of total equalised disposable income; the standard error of this estimate is 0.17 per cent, and the 95% confidence interval for the true value is (40.8, 41.4) per cent.

As the formula involves an approximation, the figures shown in Table 4 are likely to be under-estimates of the true position.

Previous articles

51. This article is the latest in an annual series. Earlier articles covering the years 1957 to 1986 (using the old methodology) were published in the following issues of *Economic Trends*: November 1962, February 1964, August 1966, February 1968, 1969, 1970, 1971, 1972, November 1972 and 1973, December 1974, February 1976, December 1976, February 1978, January 1979, 1980, 1981 and 1982, December 1982, November 1983, December 1984, December 1985, July 1986, November 1986, July 1987 and December 1988.

52. The results for 1987 (the first year of using the new methodology) were published in the May 1990 edition of *Economic Trends*, and the 1988 results appeared in the March 1991 edition. The latest three articles use a very different methodology to the earlier years, and hence are completely incompatible.

53. 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 1977-1989. Enquiries should be addressed to Dave Westcott, Branch 3E, Central Statistical Office, Room 1936, Millbank Tower, Millbank, London SW1P 4QQ.

Corrigendum

54. The final column of Table G in last year's article (ie 1988 data on page 113 of March 1991 Economic Trends) contains some errors. The correct figures are given below:

TABLE G

Indirect taxes as a percentage of disposable income for non-retired households, 1988

Final column (All non-retired households)

<u>Percentages</u>	<u>Correct figure</u>	<u>As published</u>
VAT	8.0	8.6
Duty on beer	0.8	1.0
Duty on wines	0.8	0.8
Duty on tobacco	1.9	2.6
Duty on hydrocarbon oils	1.6	1.7
Car tax	1.1	1.1
Other taxes	1.4	1.4
Intermediate taxes	4.9	5.5
Total indirect taxes	20.5	22.8

Standard errors of the mean, 1989

TABLE 1 (Appendix 2)

			Standard error of the mean of the five income measures (£ per year)						
			Number in sample	Original income	Gross income	Disposable income		Post-tax income	Final income
						Unadjusted	Equivalised		
Household type/ Quantile group									
All households	.. ..	7 410	190	178	140	114	125	131
Non-retired	.. ..	5 484	225	213	169	140	155	160
Retired	.. ..	1 926	166	165	126	131	111	117
Quintile group ⁽¹⁾									
Bottom	.. ..	1 482	103	99	85	42	76	168
2nd	.. ..	1 482	458	374	294	71	235	425
3rd	.. ..	1 482	638	561	433	98	370	512
4th	.. ..	1 482	691	661	512	132	449	570
Top	.. ..	1 482	617	615	507	401	482	498
Decile group ⁽¹⁾									
Bottom	.. ..	741	114	122	108	52	105	251
2nd	.. ..	741	409	351	285	42	215	496
3rd	.. ..	741	725	598	492	58	388	736
4th	.. ..	741	1 053	850	656	89	544	1 033
5th	.. ..	741	1 194	1 009	773	94	678	966
6th	.. ..	741	1 307	1 188	922	109	776	1 082
7th	.. ..	741	1 414	1 346	1 028	122	864	1 172
8th	.. ..	741	1 353	1 312	1 030	152	934	1 159
9th	.. ..	741	1 311	1 295	985	195	869	1 024
Top	.. ..	741	1 063	1 064	896	694	856	879
Household type									
1 adult retired..	.. ..	1 008	155	148	110	181	101	102
2 or more adults retired	.. ..	918	290	278	209	188	188	193
1 adult non-retired	.. ..	828	344	312	236	387	214	210
2 adults non-retired	.. ..	1 578	429	409	307	305	285	285
3 or more adults non-retired	.. ..	633	639	593	459	298	418	444
1 adult with children ..	.. ..	313	487	431	363	321	347	373
2 adults and 1 child ..	.. ..	620	579	547	456	393	422	421
2 adults and 2 children	.. ..	793	621	605	528	359	506	504
2 adults with 3 or more children	.. ..	347	1 003	953	754	431	723	721
3 or more adults with children..	.. ..	372	813	741	555	289	503	520

(1) Households ranked by equivalised disposable income.

Standard errors for disposable income for quintile groups⁽¹⁾ within household type, 1989

TABLE 2 (Appendix 2)

	Numbers in sample	Standard error for mean unadjusted disposable income for quintile groups of households ranked by equivalised disposable income (£ per year)					All groups
		Bottom	2nd	3rd	4th	Top	
Household type							
All households	7 410	85	294	433	512	507	140
Non-retired	5 484	165	387	566	615	645	169
Retired	1 926	88	205	275	351	508	126
1 adult retired	1 008	49	49	31	84	474	110
2 or more adults retired	918	99	149	282	300	819	209
1 adult non-retired	828	96	194	224	320	716	236
2 adults non-retired	1 578	187	208	262	328	1 101	307
3 or more adults non-retired	633	426	868	1 062	1 170	1 449	459
1 adult with children	313	262	408	489	671	1 632	363
2 adults with 1 child	620	310	384	484	589	1 678	456
2 adults 2 children	793	309	348	450	622	2 123	528
2 adults with 3 or more children	347	355	709	802	987	2 945	754
3 or more adults with children	372	566	1 252	1 324	1 304	1 738	555

1. Ranked by equivalised disposable income

Standard errors for unadjusted disposable income expressed as a percentage of the mean, 1977 to 1989

TABLE 3 (Appendix 2)

	Number in sample (1989)	Standard error for mean unadjusted disposable income expressed as a percentage of the mean (%)						
		1977	1979	1981	1983	1985	1987	1989
Household type								
All households	7 410	1.0	1.0	1.2	1.1	1.2	1.2	1.2
Non-retired	5 484	1.0	1.0	1.2	1.1	1.2	1.2	1.2
Retired	1 926	2.0	1.9	2.0	2.0	2.2	2.7	2.2
1 adult retired	1 008	2.0	2.0	2.1	2.1	2.0	4.0	2.8
2 or more adults retired	918	2.5	2.3	2.4	2.6	2.9	3.3	2.7
1 adult non-retired	828	3.1	3.2	3.9	3.4	3.3	4.0	3.0
2 adults non-retired	1 578	2.0	1.6	2.9	2.4	2.0	2.0	2.1
3 or more adults non-retired	633	2.0	2.3	2.1	2.4	2.5	3.1	2.3
1 adult with children	313	5.3	5.9	13.0	4.9	4.6	4.4	5.8
2 adults with 1 child	620	2.4	2.4	2.7	2.6	3.0	3.0	3.2
2 adults 2 children	793	2.0	2.2	1.9	2.3	2.6	3.1	3.2
2 adults with 3 or more children	347	3.2	3.1	3.9	3.7	5.7	5.0	4.9
3 or more adults with children	372	2.2	2.3	2.8	2.5	3.1	3.2	3.0

Standard errors for shares of total income, 1989

TABLE 4 (Appendix 2)

			Share of total income, r (as %)	Standard error of r (as %)	95 % confidence interval for r (as %)
Equivalised original income					
Quintile group ⁽¹⁾					
Bottom	..	..	2.0	0.04	(1.90 , 2.04)
2nd	..	..	7	0.14	(6.6 , 7.2)
3rd	..	..	16	0.27	(16.0 , 17.0)
4th	..	..	26	0.37	(25.2 , 26.7)
Top	..	..	49	0.76	(47.2 , 50.2)
All households	..	..	100		
Equivalised gross income					
Quintile group ⁽¹⁾					
Bottom	..	..	7.1	0.05	(6.98 , 7.19)
2nd	..	..	11	0.07	(10.7 , 10.9)
3rd	..	..	16	0.18	(16.1 , 16.8)
4th	..	..	23	0.26	(23.0 , 29.0)
Top	..	..	42	0.12	(41.9 , 42.4)
All households	..	..	100		
Equivalised disposable income					
Quintile group ⁽¹⁾					
Bottom	..	..	7.6	0.05	(7.45 , 7.66)
2nd	..	..	12	0.08	(11.4 , 11.7)
3rd	..	..	17	0.17	(16.3 , 16.9)
4th	..	..	23	0.24	(22.7 , 23.7)
Top	..	..	41	0.17	(40.8 , 41.4)
All households	..	..	100		
Equivalised post - tax income					
Quintile group ⁽¹⁾					
Bottom	..	..	6.9	0.01	(6.84 , 6.87)
2nd	..	..	11	0.11	(10.9 , 11.3)
3rd	..	..	16	0.20	(15.6 , 16.4)
4th	..	..	23	0.29	(22.5 , 23.6)
Top	..	..	43	0.26	(42.5 , 43.5)
All households	..	..	100		

1 Ranked by equivalised disposable income.

APPENDIX 3

Three tables for 1989, ranked using *unadjusted* disposable income

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By decile groups of households	2
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Average incomes, taxes and benefits, 1989
By quintile groups of households (ranked by UNADJUSTED disposable income)

TABLE 1 (Appendix 3)

	Quintile groups of households ranked by UNADJUSTED disposable income					All households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
<i>Quintile points</i>		4 540	7 933	12 176	17 805	
Number of households in the sample	1 482	1 482	1 482	1 482	1 482	7 410
Original income						
Earnings of main earner	315	2 536	7 861	12 073	20 696	8 696
Other earnings	14	128	1 200	3 639	8 648	2 726
Occupational pensions, annuities	283	870	854	823	922	750
Investment income	186	456	650	704	1 640	727
Other income	73	118	148	192	517	210
Total	870	4 108	10 713	17 431	32 424	13 109
Direct benefits in cash						
Contributory						
Retirement pension	1 613	1 418	645	338	189	841
Unemployment benefit	28	49	41	31	22	34
Incapacity pension and allowance	79	189	141	84	52	109
Statutory sick pay	2	16	35	44	35	26
Industrial injury disablement benefit	1	18	17	7	12	11
Sickness, industrial injury benefit	8	13	12	7	14	11
Widows' benefits	46	58	44	20	22	38
Maternity/Statutory Maternity pay	1	6	15	18	15	11
Miscellaneous contributory benefits	9	9	6	2	1	5
Non-contributory						
Income support/Supplementary benefit	371	468	203	113	39	239
Child benefit	76	200	280	306	306	233
Housing benefit	555	343	96	31	4	206
Invalid care allowance	1	5	9	7	7	6
Attendance allowance	8	54	38	22	15	27
Mobility allowance	6	45	44	30	16	28
War pensions	8	13	15	11	14	12
Severe disablement allowance	26	84	57	35	15	43
Student maintenance awards	27	50	36	28	29	34
Government training schemes	10	29	40	42	41	32
Family credit/income supplement	8	34	30	6	5	16
Other non-contributory benefits	16	21	17	11	3	14
Total cash benefits	2 901	3 120	1 819	1 193	855	1 978
Gross income	3 771	7 228	12 532	18 624	33 279	15 087
Direct taxes and Employees' NIC						
Income tax	117	520	1 550	2 696	5 522	2 081
less: Tax relief at source ⁽¹⁾	20	65	206	434	587	262
Employees' NI contributions	20	169	591	993	1 444	644
Domestic rates/Community charge (gross)	474	525	566	621	744	586
Total	592	1 149	2 500	3 876	7 124	3 048
Disposable income	3 179	6 079	10 032	14 748	26 155	12 039
Indirect taxes						
Taxes on final goods and services						
VAT	272	515	856	1 275	1 899	963
Duty on tobacco	108	193	248	253	252	211
Duty on beer and cider	22	47	89	121	166	89
Duty on wines	5	12	25	36	73	30
Duty on spirits	20	38	61	75	118	62
Duty on hydrocarbon oils	36	101	174	238	315	173
Car tax	6	13	36	59	92	41
Vehicle excise duty	22	53	89	113	147	85
Television licences	44	52	58	60	62	55
Stamp duty on house purchase	6	10	23	44	57	28
Customs' duties	14	26	39	54	76	42
Betting taxes	19	32	42	50	66	42
Other	6	12	17	15	24	15
Intermediate taxes						
Commercial and industrial rates	69	113	165	226	331	181
Employers' NI contributions	80	133	193	266	394	213
Duty on hydrocarbon oils	33	55	76	102	149	83
Vehicle excise duty	8	14	19	26	39	21
Other	33	54	79	107	154	85
Total indirect taxes	804	1 472	2 287	3 119	4 414	2 419
Post-tax income	2 375	4 607	7 745	11 628	21 741	9 619
Benefits in kind						
Education	253	635	916	999	1 148	790
National health service	1 052	1 118	1 043	965	987	1 033
Housing subsidy	121	106	65	30	18	68
Rail travel subsidy	7	8	11	25	41	18
Bus travel subsidy	34	35	21	18	17	25
School meals and welfare milk	19	47	26	23	15	26
Total	1 487	1 948	2 082	2 061	2 226	1 961
Final income	3 862	6 556	9 827	13 689	23 967	11 580

¹ On mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1989
By decile groups of households (ranked by UNADJUSTED disposable income)

TABLE 2 (Appendix 3)

	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)											
<i>Decile points</i>	3 246	4 540	5 967	7 933	10 050	12 176	14 615	17 805	22 689		
Number of households in the sample	741	741	741	741	741	741	741	741	741	741	7 410
Original income											
Earnings of main earner	206	424	1 459	3 613	6 410	9 311	11 019	13 127	15 757	25 636	8 696
Other earnings	7	20	45	210	734	1 667	2 971	4 308	6 547	10 749	2 726
Occupational pensions, annuities ..	163	402	697	1 043	971	737	697	949	749	1 095	750
Investment income	159	213	374	538	653	647	640	767	1 026	2 254	727
Other income	48	98	112	123	194	103	213	171	334	700	210
Total	583	1 157	2 688	5 527	8 962	12 465	15 540	19 322	24 413	40 434	13 109
Direct benefits in cash											
Contributory											
Retirement pension	1 480	1 747	1 719	1 117	810	480	358	318	201	178	841
Unemployment benefit	25	31	35	63	44	39	30	33	33	11	34
Incapacity pension and allowance	53	106	139	238	174	108	101	67	75	29	109
Statutory sick pay	3	2	14	17	32	37	44	44	36	34	26
Industrial injury disablement benefit	-	2	16	21	14	21	14	1	13	11	11
Sickness, industrial injury benefit	8	7	19	7	9	14	10	3	24	4	11
Widows' benefits	53	39	60	57	62	26	15	26	14	29	38
Maternity/ Statutory Maternity pay	2	1	4	7	12	18	16	19	12	18	11
Miscellaneous contributory benefits	9	9	10	9	7	4	3	2	1	1	5
Non-contributory											
Income support/ Supplementary benefit	284	458	500	436	243	163	138	88	31	48	239
Child benefit	44	108	170	229	270	290	327	284	303	309	233
Housing benefit	459	652	426	260	128	63	42	20	4	4	206
Invalid care allowance	-	2	4	6	6	11	7	7	11	4	6
Attendance allowance	3	12	37	72	38	38	21	23	18	11	27
Mobility allowance	5	8	43	46	58	30	27	32	20	12	28
War pensions	1	14	9	17	12	18	8	13	26	3	12
Severe disablement allowance	17	34	83	85	79	35	33	36	20	10	43
Student maintenance awards	40	14	58	41	21	51	32	24	34	24	34
Government training schemes	12	9	28	29	42	38	38	47	55	26	32
Family credit/ income supplement	1	15	27	41	41	18	10	3	5	4	16
Other non-contributory benefits	7	26	20	22	19	15	17	6	1	5	14
Total cash benefits	2 506	3 296	3 422	2 819	2 121	1 517	1 290	1 095	935	775	1 978
Gross income	3 089	4 453	6 110	8 346	11 083	13 982	16 830	20 417	25 348	41 209	15 087
Direct taxes and Employees' NIC											
Income tax	114	119	316	724	1 256	1 845	2 336	3 056	3 958	7 087	2 081
less: Tax relief at source ⁽¹⁾	18	21	46	84	157	256	381	487	507	666	262
Employees' NI contributions	16	25	93	246	460	721	912	1 074	1 310	1 579	644
Domestic rates/Community charge (gross)	467	481	520	529	555	577	599	642	700	788	586
Total	579	605	883	1 415	2 114	2 886	3 467	4 285	5 460	8 788	3 048
Disposable income	2 511	3 848	5 227	6 931	8 968	11 096	13 363	16 132	19 888	32 421	12 039
Indirect taxes											
Taxes on final goods and services											
VAT	236	307	443	586	800	912	1 139	1 411	1 608	2 190	963
Duty on tobacco	87	129	173	214	255	240	253	253	252	252	211
Duty on beer and cider	23	22	40	54	84	94	111	131	158	175	89
Duty on wines	4	6	9	14	24	25	30	42	56	90	30
Duty on spirits	18	23	34	41	52	69	66	83	114	121	62
Duty on hydrocarbon oils	34	37	85	117	158	189	220	256	304	326	173
Car tax	7	4	7	18	38	33	49	68	78	105	41
Vehicle excise duty	19	25	45	61	82	95	108	117	135	159	85
Television licences	43	46	49	54	57	58	60	61	62	61	55
Stamp duty on house purchase	6	5	8	13	19	28	39	48	51	64	28
Customs' duties	12	17	22	29	36	41	51	58	66	85	42
Betting taxes	22	15	27	36	34	50	46	55	64	69	42
Other	6	7	10	13	13	22	16	14	22	26	15
Intermediate taxes											
Commercial and industrial rates	63	75	100	126	154	175	208	245	284	379	181
Employers' NI contributions	72	87	117	148	180	206	245	288	335	453	213
Duty on hydrocarbon oils	30	36	49	61	73	80	95	109	128	170	83
Vehicle excise duty	7	9	12	16	18	20	24	28	33	45	21
Other	30	36	48	60	74	83	99	115	133	175	85
Total indirect taxes	723	886	1 282	1 661	2 151	2 422	2 857	3 382	3 883	4 945	2 419
Post-tax income	1 788	2 963	3 945	5 269	6 817	8 674	10 506	12 751	16 005	27 476	9 619
Benefits in kind											
Education	246	261	574	697	834	998	1 026	973	1 206	1 091	790
National health service	975	1 129	1 147	1 089	1 049	1 038	977	954	951	1 024	1 033
Housing subsidy	94	147	117	95	69	61	38	22	22	13	68
Rail travel subsidy	7	8	5	10	10	13	24	26	32	50	18
Bus travel subsidy	30	38	38	31	23	20	18	17	18	17	25
School meals and welfare milk	13	26	46	47	28	23	28	19	14	16	26
Total	1 364	1 609	1 927	1 970	2 011	2 153	2 111	2 010	2 242	2 210	1 961
Final income	3 152	4 572	5 872	7 239	8 828	10 827	12 617	14 761	18 248	29 686	11 580

¹ On mortgage interest and life assurance premiums.

Cross-tabulation of households ranked by disposable income, unadjusted and equivalised, 1989

TABLE 3 (Appendix 3)

(i) Quintile groups				Quintile groups of equivalised disposable income					All households					
				Bottom	2nd	3rd	4th	Top						
Number of households														
Quintile groups of unadjusted disposable income														
Bottom	..	..	..	985	497	-	-	-	-	1 482				
2nd	..	..	..	439	586	312	145	-	-	1 482				
3rd	..	..	..	57	327	688	277	133	-	1 482				
4th	..	..	..	1	69	415	637	360	-	1 482				
Top	..	..	..	-	3	67	423	989	-	1 482				
All households..				1 482	1 482	1 482	1 482	1 482	1 482	7 410				
(ii) Decile groups				Decile groups of equivalised disposable income										All households
				Bottom	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	
Number of households														
Decile groups of unadjusted disposable income														
Bottom	390	281	70	-	-	-	-	-	-	-	741
2nd	202	112	272	155	-	-	-	-	-	-	741
3rd	82	234	194	25	132	74	-	-	-	-	741
4th	47	76	107	260	59	47	121	24	-	-	741
5th	18	29	65	129	229	140	2	89	40	-	741
6th	2	8	23	110	160	159	185	1	78	15	741
7th	-	1	8	52	106	165	115	221	5	68	741
8th	-	-	-	9	40	104	174	127	238	49	741
9th	-	-	2	1	14	49	123	203	188	161	741
Top	-	-	-	-	1	3	21	76	192	448	741
All households..				741	741	741	741	741	741	741	741	741	741	7 410

APPENDIX 4

Trends in income distribution, 1977-1989

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Percentage shares of total original, gross, disposable and post-tax incomes by quintile groups of households⁽¹⁾, 1977-1989

TABLE 1 (Appendix 4)

	1977	1979	1981	1983	1985	1987	1989
Equivalised original income							
Quintile group							
Bottom	3.6	2.4	2.9	3.0	2.5	2.1	2.0
2nd	10	10	9	8	7	7	7
3rd	18	18	17	17	17	16	16
4th	26	27	26	26	27	25	26
Top	43	43	46	47	47	50	49
All households.. .. .	100	100	100	100	100	100	100
Equivalised gross income							
Quintile group							
Bottom	8.9	8.5	8.4	8.5	8.3	7.5	7.1
2nd	13	13	12	12	12	11	11
3rd	18	18	17	17	17	16	16
4th	24	24	23	23	24	23	23
Top	37	37	39	39	40	43	42
All households.. .. .	100	100	100	100	100	100	100
Equivalised disposable income							
Quintile group							
Bottom	9.7	9.4	9.3	9.5	9.2	8.2	7.6
2nd	14	13	13	13	13	12	12
3rd	18	18	17	17	17	16	17
4th	23	23	23	23	23	23	23
Top	36	36	38	38	38	41	41
All households.. .. .	100	100	100	100	100	100	100
Equivalised post-tax income							
Quintile group							
Bottom	9.4	9.5	9.0	8.9	8.6	7.6	6.9
2nd	14	13	13	13	13	12	11
3rd	17	18	17	17	17	16	16
4th	23	23	22	22	23	22	23
Top	37	37	39	39	39	43	43
All households.. .. .	100	100	100	100	100	100	100

¹ Ranked by equivalised disposable income.

Gini coefficients for the distribution of income at each stage of the tax-benefit system, 1977-1989

TABLE 2 (Appendix 4)

				1977	1979	1981	1983	1985	1987	1989
Gini coefficients (per cent)										
Equivalised original income	..	..	..	43	44	46	48	49	51	50
Equivalised gross income	..	..	..	29	30	31	32	32	36	36
Equivalised disposable income	..	..	..	27	27	28	28	29	33	34
Equivalised post-tax income	..	..	..	29	29	31	31	32	36	37

