

THE EFFECTS OF TAXES AND BENEFITS ON HOUSEHOLD INCOME, 1988

The main points are:

(1) The effect of government expenditure and taxation is to reduce the differences in income amongst households. In 1988 taxes and benefits (including NI pensions) increased the share of total income of the bottom fifth of households from 1.9 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.

(3) Results for the period 1977-1988, reworked using the new methodology, show that the distribution of household income has become more unequal. The bottom quintile group's share of disposable income fell from 9.7 per cent to 7.6 per cent whilst the share of the top fifth of households went up from 36 per cent to 42 per cent (Table N).

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 1988 the Government raised and spent £177 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 has a special topic.

Last year (ie 1987 results) we made some fundamental changes to the article after reviewing the methodology of the analysis. The most important change was to introduce equivalisation (ie adjusting income to allow for household size and composition) into the ranking process. The effects of equivalisation formed last year's special topic. A related change was to restrict the ranking process to just one income measure, disposable income - the previous methodology used original income as well as gross income and disposable income for ranking purposes in different tables. Other notable changes were to the definitions of an 'adult', and 'disposable income' (which now has domestic rates deducted). We have re-worked the data for previous years using this new methodology, and the trends in the income distribution over the period 1977-1988 form this 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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|------------|--|
| Part I | Detailed description of results for 1988 for all households, and for retired and non-retired households separately. |
| Part II | Trends in income distribution, 1977-1988: re-worked on the new basis. |
| Appendix 1 | Detailed tables 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 1988, ranked using <i>unadjusted</i> disposable income. |
| Appendix 4 | Summary of the effects of taxes and benefits, 1977-1988. |

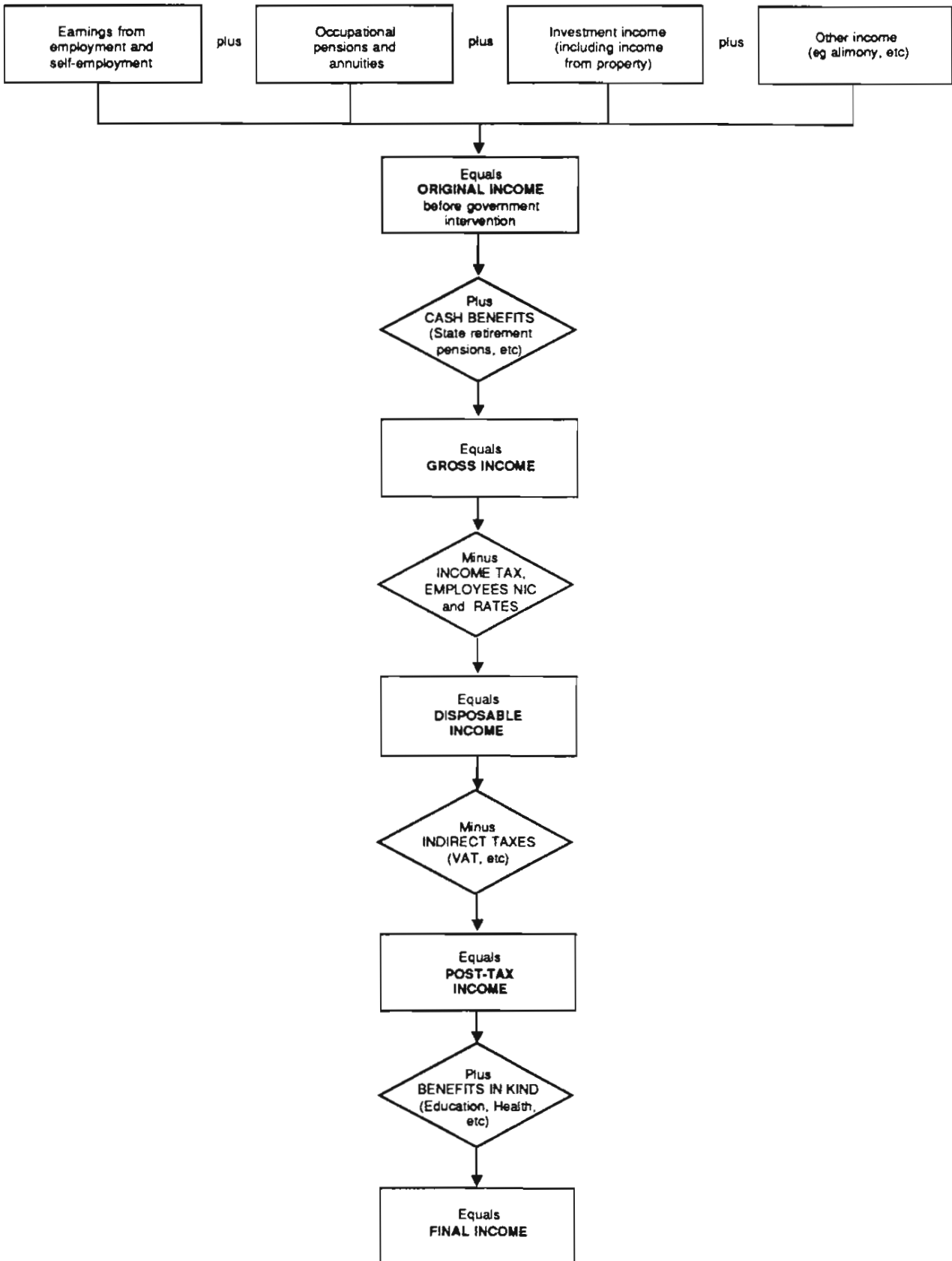
The main data source is the annual Family Expenditure Survey (FES). Since this article is based on a sample survey, its results are subject to sampling errors. These are generally larger for the smaller household groups (further details on sampling errors and reliability are given in Appendix 2). The unit of analysis is the household, rather than the person or tax 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 last year mean that the 1987 figures are completely incompatible with those already published for earlier years.

As a special exercise, this year, we have re-worked the data for the earlier years (1977-1986) using the new methodology of equivalisation, definition of adult etc. The results are presented in Part II of the main article (and in Appendix 4 for certain summary tables). *Readers should note that even the re-worked series is not a fully-consistent time series* - this cannot be produced because of changes in the FES and gradual improvements to our methodology over the years. The FES changes slightly each year, and these changes can make one year slightly inconsistent with previous years:

CHART 1

Stages of redistribution



for example in 1988 questions were introduced for retrospective recall of certain large expenditure items (eg furniture) which gave better quality data than the usual fortnightly diary recording, but which introduced an unbridgeable dis-continuity with previous years' figures.

Over the years many improvements have been made to the analysis behind the figures in this article; for example in estimating mortgage interest payments when the FES respondent can only give the last payment (which includes interest and capital in unknown proportions). In many cases, however, it is not practicable to re-work earlier years' results to incorporate improvements in methodology because of prohibitive cost or changes in the FES.

Summary of methodology and sources

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.

The main source of data for this analysis is the Family Expenditure Survey (FES) 1988. This is a continuous household survey which collects information on the income, expenditure and direct tax payments of each household member aged 16 years and over, and on household composition and other characteristics such as tenure. In 1988 some 7,300 households participated in the UK - about 1 in every 3,000 households. The response rate was 71 per cent in Great Britain; the FES in Northern Ireland is a separate exercise to the rest of UK, with a much larger sampling fraction, and only a proportion

of these cases go into the UK analysis. 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, in general, comparisons of survey results over successive years justify confidence in their general reliability, and examination of the characteristics and expenditure and income patterns of various groups of households shows a high degree of internal consistency. 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).

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 1988, derived from the National Accounts. Appendix 2 gives more detail on the methodology.

PART I

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

Summary of the effects of taxes and benefits, 1988

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	1 210	4 440	10 750	16 260	29 170	12 360
<i>plus</i> cash benefits	3 210	2 800	1 760	1 080	720	1 910
Gross income	4 430	7 240	12 500	17 340	29 880	14 280
<i>less</i> direct taxes ²⁾ & employees' NIC	670	1 220	2 450	3 790	6 690	2 960
Disposable income	3 760	6 020	10 050	13 540	23 190	11 310
<i>less</i> indirect taxes	1 080	1 470	2 410	2 900	3 710	2 320
Post-tax income	2 680	4 540	7 650	10 640	19 480	9 000
<i>plus</i> benefits in kind	2 120	2 020	2 060	1 720	1 220	1 830
Final income	4 800	6 570	9 700	12 360	20 700	10 830
Average per household (number)						
Children ³⁾	0.6	0.6	0.8	0.6	0.4	0.6
Adults	1.6	1.7	2.1	2.1	2.0	1.9
Persons	2.2	2.3	2.9	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 I 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.
- 3 Children are defined as persons aged under 16 or aged between 16 and 18, unmarried and receiving non-advanced further education.

The composition of each quintile group of households, 1988

TABLE B

	Quintile group of households ranked by equivalised disposable income					All households
	Bottom	2nd	3rd	4th	Top	
Percentages						
Household type						
Retired	51	45	19	9	6	26
Non-retired						
1 adult	10	7	7	14	18	11
2 adults	7	12	18	27	41	21
1 adult with children ¹⁾	10	5	3	2	-	4
2 adults with children	16	21	34	29	20	24
3 or more adults ²⁾	5	10	19	20	15	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

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 (£1,210 per annum). In the highest quintile group, there are an average of 1.7 economically active people and average original income is £29,170. 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 £4,800 to £20,700, a ratio of about 1:4 compared with the ratio for original incomes of about 1:25.

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 50 per cent of all original income. After taking into account cash benefits, this same group's share falls to 43 per cent. At the other end of the scale, the share of the lowest quintile group rises from 1.9 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 incomes, and hence 'final income' has not been included. The McClements equivalence scales, which were estimated using household spending patterns, are arguably inappropriate for equivalising non-spendable amounts of income eg benefits from education. Estimates for quintile shares may be subject to relatively large sampling errors and comparisons should therefore be made with caution (see Appendix 2).

The Gini coefficient is the most widely used summary measure of the inequality of the distribution of income (see paragraph 37 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 51 per cent to 37 per cent shown in Table C shows that cash benefits contribute the most to the reduction in income inequality.

CHART 2

Sources of gross income, by quintile groups of equivalised disposable income, 1988

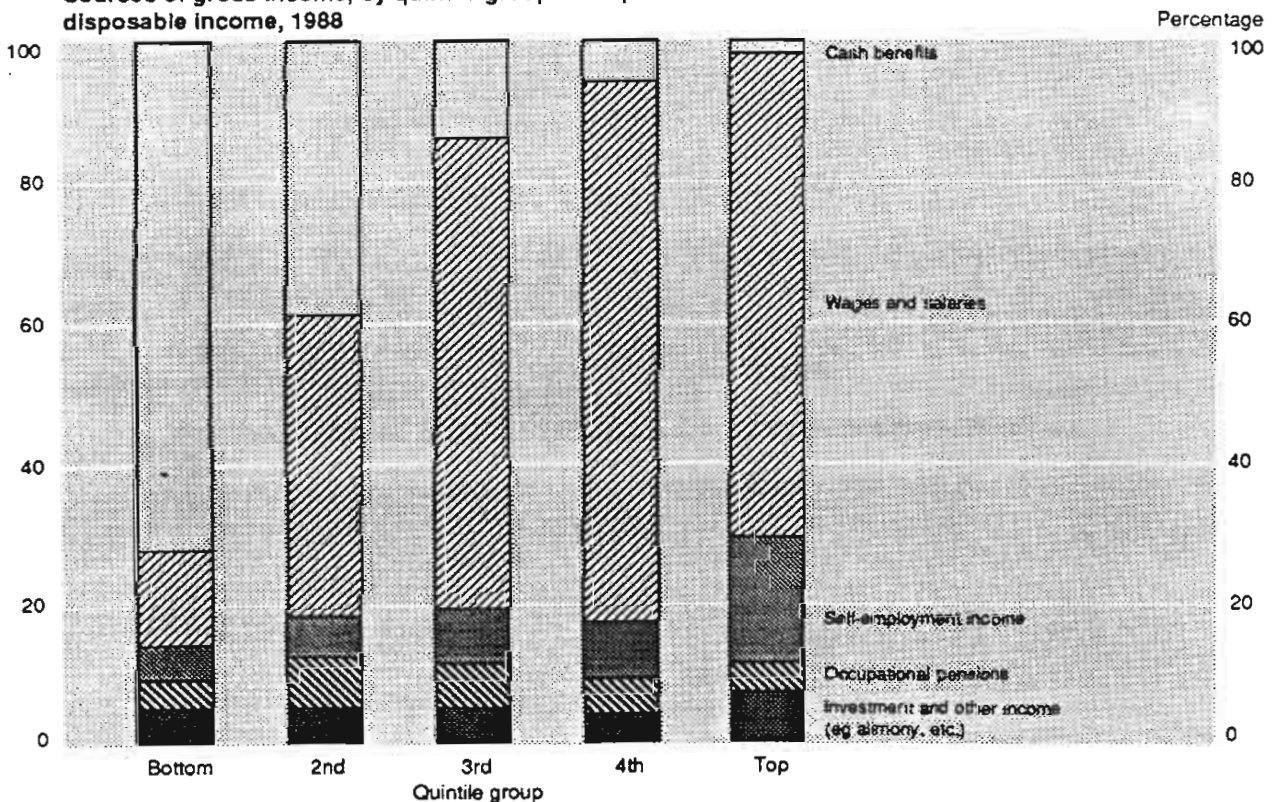
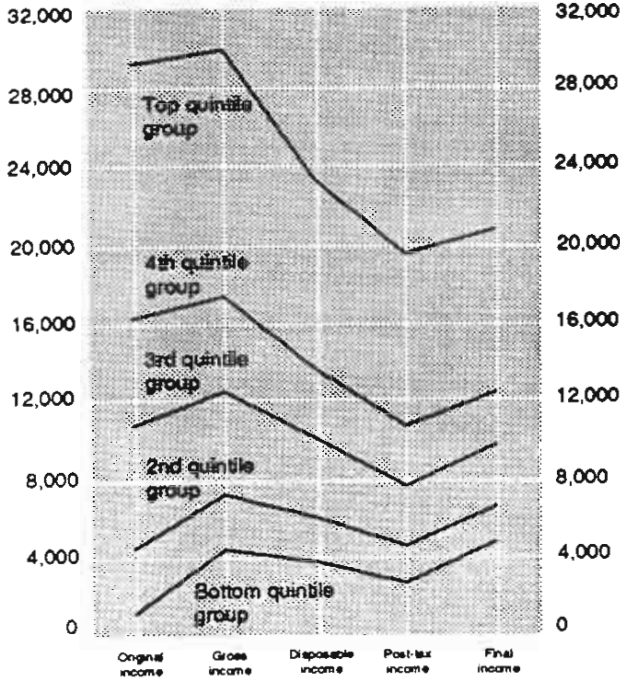


CHART 3

The effects of taxes and benefits on quintile groups¹ of households, 1988

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⁾, 1988

TABLE C

Quintile group	Percentage shares of total equivalised income for households ranked by equivalised disposable income			
	Original income	Gross income	Disposable income	Post-tax income
Bottom ..	1.9	7.1	7.6	6.9
2nd ..	7	11	11	11
3rd ..	16	16	16	16
4th ..	25	23	23	22
Top ..	50	43	42	44
All households	100	100	100	100
Decile group				
Bottom ..	0.8	3.1	3.2	2.7
Top ..	32	27	27	29
Gini coefficient (percent) ..	51	37	35	39

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.

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.

Summary of the effects of taxes and benefits on NON-RETIRED households, 1988

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 ..	3 120	9 810	14 380	18 960	32 000	15 650
plus cash benefits ..	2 970	1 710	1 140	680	550	1 410
Gross income ..	6 090	11 520	15 510	19 640	32 550	17 060
less direct taxes ⁽¹⁾ and employees' NIC	1 030	2 190	3 290	4 380	7 240	3 630
Disposable income ..	5 060	9 330	12 230	15 260	25 310	13 440
less indirect taxes ..	1 550	2 350	2 810	3 220	3 850	2 760
Post-tax income ..	3 510	6 980	9 420	12 040	21 450	10 680
plus benefits in kind ..	2 650	2 440	2 020	1 560	1 170	1 970
Final income ..	6 170	9 420	11 440	13 600	22 620	12 650
Average per household (number)						
Children ⁽²⁾ ..	1.2	1.1	0.8	0.6	0.4	0.8
Adults ..	1.8	2.2	2.2	2.1	2.0	2.1
Persons ..	3.0	3.2	3.1	2.7	2.4	2.9
People in full-time education ..	1.0	0.9	0.7	0.5	0.3	0.7
Economically active people ..	0.7	1.5	1.8	1.9	1.8	1.6
Retired people ..	0.1	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.

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 £3,120 per annum in the lowest quintile group to £32,000 in the highest (Table D), a ratio of 1:10 compared to the ratio of 1:25 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. There is also a strong relationship between the number of children per household and household income: the number of children falls steadily as income rises.

Average value of cash benefits for each quintile group of NON-RETIRED households, 1988

TABLE E

	Quintile group of NON-RETIRED households ranked by equivalised disposable income					All non-retired households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ a year)						
Contributory						
Retirement pension ..	130	300	220	150	140	190
Sickness/injury related ..	280	220	120	100	80	160
Unemployment benefit ..	130	80	60	20	20	60
Other	70	70	70	60	30	60
Total contributory	610	670	480	340	270	470
Non-contributory						
Income support, etc ..	1 010	220	100	30	20	280
Child benefit	460	400	320	220	160	310
Housing benefit	560	130	50	10	10	150
Sickness/disablement related	130	160	90	30	50	90
Other	200	130	90	50	40	100
Total non-contributory ..	2 360	1 050	660	350	280	940
Total cash benefits	2 970	1 710	1 140	680	550	1 410
Cash benefits as a percentage of gross income	49	15	10	3	2	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 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 some 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 £305 of weekly earnings (the ceiling in operation during most of 1988), 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).

Income tax, employees' NIC and domestic rates as percentages of gross income for each quintile group of NON-RETIRED households, 1988

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	6.3	9.4	11.9	13.6	16.1	13.2
Employees' NIC	2.8	5.2	5.8	5.8	4.0	4.8
Gross domestic rates	7.7	4.4	3.5	2.9	2.2	3.3
Total	16.9	19.0	21.2	22.3	22.2	21.3

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

In 1988 over one-third of working age individuals had insufficient income to pay income tax, and marginal tax rates for taxpayers ranged from 25 per cent to 40 per cent. The analysis of households when ranked by equivalised disposable income shows average rates were 6.3 per cent in the lowest quintile, rising steadily to 16.1 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 were an indirect tax, are included here with income tax and NICs on the grounds that this will be the appropriate treatment for the community charge in future articles. 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 (Table G), ranging from 30 per cent in the bottom quintile group to 15 per cent in the highest, though the highest quintile pay most in indirect taxes in absolute terms. However, individual taxes have different effects.

Indirect taxes as a percentage of disposable income for each quintile group of NON-RETIRED households, 1988

TABLE G

Percentages	Quintile groups of NON-RETIRED households ranked by equalised disposable income					All non- retired house- holds
	Bottom	2nd	3rd	4th	Top	
VAT.. .. .	10.3	9.1	8.7	8.4	6.6	8.6
Duty on beer and cider	1.2	1.1	1.2	0.9	0.5	1.0
Duty on wines and spirits	0.9	0.8	0.8	0.9	0.8	0.8
Duty on tobacco	5.4	3.1	2.3	1.7	0.7	2.6
Duty on hydrocarbon oils	1.9	2.0	1.9	1.8	1.1	1.7
Car tax and vehicle excise duty ..	1.2	1.3	1.2	1.2	0.8	1.1
Other taxes on final goods and services	1.2	1.9	1.6	1.4	1.0	1.4
Intermediate taxes	7.4	5.9	5.3	4.9	3.9	5.5
Total indirect taxes⁽¹⁾	29.5	25.2	23.0	21.1	15.2	22.8

¹The corresponding figures using total expenditure as the denominator are :
22.1, 22.3, 22.7, 22.5, 20.3 (top group) and 21.8 per cent.

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.

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 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 spend a smaller proportion of their income than households with smaller incomes. If the incidence of indirect taxes were to be expressed in terms of expenditure rather than income, they can be shown to be much less regressive.

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 23.7 per cent of total general government expenditure in 1988. Other items for which imputations are made are school meals and welfare milk, the housing subsidy and travel subsidies, together accounting for a further 1.8 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 with income.

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.

Average value of benefits in kind for each quintile group of NON-RETIRED households, 1988

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 (£ a year)						
Education ..	1 530	1 380	1 020	740	400	1 010
National health service ..	870	940	890	730	680	820
Housing subsidy ¹⁾ ..	120	60	40	20	10	50
Travel subsidies ..	30	40	50	50	70	50
School meals and welfare milk ..	100	30	20	10	10	30
Total	2 650	2 440	2 020	1 560	1 170	1 970
Benefits in kind as a percentage of post-tax income ..	75	35	21	13	5	18

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.

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 75 per cent in the lowest quintile group to 5 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 (when ranked by equivalised disposable income) receive 44 per cent of all (equivalised) original income, compared with 3.5 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 7.4 per cent and that of the highest falls to 41 per cent. Cash benefits are the major factor underlying these changes, causing the Gini coefficient to fall from 42 per cent based on original income to 35 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.

Percentage shares of total household income and Gini coefficients⁽¹⁾ for NON-RETIRED households, 1988

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 ..	3.5	7.0	7.4	6.5
2nd ..	11	12	13	12
3rd ..	17	17	17	16
4th ..	24	23	22	22
Top ..	44	41	41	43
All non-retired households	100	100	100	100
Decile group				
Bottom ..	0.9	2.8	3.0	2.4
Top ..	28	26	26	28
Gini coefficient (percent) ..	42	35	33	38

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.

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 £1,070 per annum in households where there are no economically active people to an average of £24,950 for households where there are three or more. Cash benefits are concentrated in households where no-one is economically active and here they form 79 per cent of gross income; but they remain important, at 10 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 household 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 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.

Average incomes, taxes and benefits by the number of economically active people per NON-RETIRED household, 1988

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>	606	1 948	2 233	594	5 381
Average per household (£ per year)					
Original income	1 070	12 150	20 190	24 950	15 650
<i>plus cash benefits</i>	4 130	1 410	810	910	1 410
Gross income	5 190	13 560	21 000	25 870	17 060
<i>less direct taxes²⁾ & employees' NIC</i>	490	2 950	4 580	5 450	3 630
Disposable income	4 700	10 610	16 420	20 420	13 440
<i>less indirect taxes</i>	1 210	2 220	3 200	4 400	2 760
Post-tax income	3 490	8 390	13 210	16 010	10 680
<i>plus benefits in kind</i>	2 580	1 730	1 910	2 340	1 970
Final income	6 070	10 120	15 130	18 360	12 650
Gini coefficients (percent)					
<i>Equivalised original income</i>	87	41	33	23	42
<i>Equivalised gross income</i>	23	35	31	22	35
<i>Equivalised disposable income</i>	23	33	30	21	33
<i>Equivalised post-tax income</i>	30	38	34	25	38

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.

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.

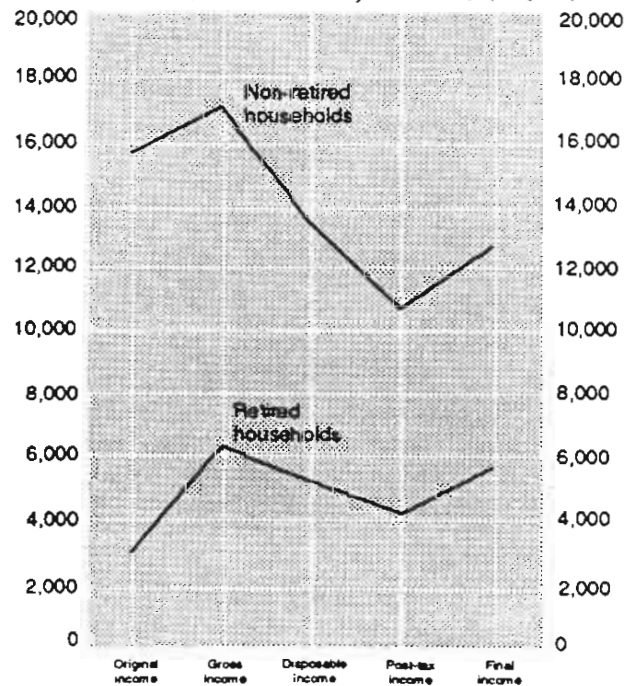
Cash benefits form a very high proportion of gross income for all but the better-off retired households. However, unlike non-retired households, the bulk of these cash benefits are paid from the National Insurance Fund into which the recipients will have made contributions throughout their working lives.

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 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.

CHART 4

The effects of taxes and benefits on retired and non-retired households, 1988

Average income per household (£ per year)



Effects of taxes and benefits on RETIRED households, 1988

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	440	620	830	2 700	10 270	2 970
<i>plus cash benefits</i>						
Contributory						
Retirement pension	2 480	2 800	2 460	2 630	2 670	2 610
Sickness/ injury related	50	60	60	140	200	100
Unemployment benefit	10	10	-	-	20	10
Other	20	20	30	50	30	30
Non-contributory						
Income support/ Supplementary benefit	110	80	90	90	40	80
Child benefit	10	-	-	-	-	-
Housing benefit	160	480	660	330	40	340
Sickness/ disablement related	-	60	100	250	240	130
Other	20	40	50	40	60	40
Gross income	3 300	4 170	4 310	6 230	13 580	6 320
<i>less income tax¹⁾</i>	100	40	90	370	2 130	550
<i>less employees' NIC</i>	-	-	-	10	30	10
<i>less domestic rates(gross)</i>	480	440	450	500	680	510
Disposable income	2 710	3 680	3 770	5 350	10 740	5 250
<i>less indirect taxes</i>						
VAT	250	240	210	410	800	380
Tobacco duty	50	100	80	100	70	80
Other taxes on final goods & services	200	210	180	320	590	300
Intermediate taxes	230	220	210	310	530	300
Post-tax income	1 990	2 920	3 080	4 200	8 750	4 190
<i>plus benefits in kind</i>						
Education	20	-	10	-	40	10
National health service	1 430	1 330	1 230	1 220	1 200	1 280
Housing subsidy ²⁾	40	110	140	90	20	80
Travel subsidies	50	60	50	50	60	60
Final income	3 530	4 410	4 510	5 570	10 080	5 620

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.

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 dispersion.

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 coefficients⁽¹⁾ for RETIRED households, 1988

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...	3.2	11.1	10.8	9.9
2nd ..	4	13	14	14
3rd ..	6	15	16	17
4th ..	19	20	20	20
Top ..	68	40	39	39
All households	100	100	100	100
Decile group				
Bottom...	1.3	5.1	4.8	4.2
Top ..	48	26	25	26
Gini coefficient (percent)	69	29	27	30

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.

PART II

TRENDS IN INCOME DISTRIBUTION, 1977-1988: RE-WORKED ON THE NEW BASIS

This part of the article examines the changes which have taken place between 1977 and 1988 in the impact of taxes and benefits on household incomes; the pre-1987 data have been re-worked using the new methodology of equivalisation etc. However, as we noted in the Introduction, even the re-worked series is not a fully-consistent time series - though it is sufficiently consistent to shed light on broad trends in income distribution. The main conclusion is that the distribution of household income has become more unequal over the 11 years. The bottom quintile group's share of total disposable income fell over the period from 9.7 to 7.6 per cent, whilst the share of the top quintile group rose from 36 to 42 per cent (Table N).

As the percentage shares of income of quintile groups are subject to sampling errors they are given only to the nearest integer. However, because the percentage shares for the bottom quintile groups are small these are given to the nearest tenth of one per cent. This should not be taken to indicate that the figures for the bottom quintile groups can be estimated more accurately than for other quintile groups. A full discussion of the margin of error of the estimates is given in Appendix 2. The scale of the errors can be seen in Tables 1 and 2 of that appendix.

Cash benefits have had the most important role to play in reducing income dispersion, and they increased in importance over the period.

In 1977 the bottom quintile group of households accounted for 3.6 per cent of total original income (Table N), and by 1988 this share of total income had fallen to 1.9 per cent. The original income of the top quintile group grew much faster than that of the other quintile groups, so that its share of total original income rose from 43 to 50 per cent, whilst the shares for the other quintile groups have declined. The story is similar for all the four measures of income shown in Table N but original income shows the strongest trend. The Gini coefficients shown in Table O give a summary of the distribution of income, and they also show increasing income inequality. The coefficients increased (signifying a more unequal distribution of income) for all four measures of income, but here the one for post-tax income went up the most.

Over the period 1977 to 1988 there has been a shift in the balance of personal taxation from income to expenditure, particularly for the lower income groups, and this is reflected in Table P. Income tax, National Insurance and rates fell from 23 per cent of gross income in 1977 to 21 per cent in 1988, averaged over all households. The largest change was between 1977 and 1979, when there was a cut in the rate of income tax and real increases in personal allowances. Indirect taxes rose as a percentage of disposable income for the lowest four quintile groups, with the bottom group showing the most marked rise. The main shift occurred between 1979 and 1981, reflecting the rise in the VAT rate in 1979. But changes in indirect payments in relation to income between 1977 and 1988 also reflect changes in saving behaviour and in the pattern of expenditure, particularly for the top quintile, as well as changes in tax rates.

Table P also shows the increasing importance of cash benefits to households in the lowest two quintile groups: cash benefits as a percentage of gross income rose from 58 to 73 per cent for the bottom quintile group, and from 27 to 39 per cent for the second quintile.

Composition and housing tenure type of the top and bottom quintile groups

This short section looks at the changes in composition and housing tenure that have taken place in the top and bottom quintile groups over the period 1977-1988. The composition (ie household type) of the top and bottom quintile groups has changed only slightly (Table Q), with the retired households continuing to dominate the bottom quintile group and '2 adult non-retired' households being the largest type in the top quintile.

The tenure type has shown more change over the period (Table R), with the proportion of owner-occupiers in the top quintile group rising from 71 to 91 per cent of the group whilst the proportion of public sector renters fell from 17 to 4 per cent. In the bottom quintile group, there were increases in owner-occupation (from 38 to 41 per cent) and public-sector renting (from 44 to 49 per cent) at the expense of private-sector renting which fell from 17 to 8 per cent. Table R also gives the average number of people per household: the bottom quintile group has consistently less adults (around 1.7 per household) than the top quintile group (around 2.1 per household).

Percentage shares of original, gross, disposable and post-tax income by quintile groups of households⁽¹⁾, 1977-1988

TABLE N

	1977	1979	1981	1983	1985	1987	1988
Equivalised original income							
Quintile group							
Bottom	3.6	2.4	2.9	3.0	2.5	2.1	1.9
2nd	10	10	9	8	7	7	7
3rd	18	18	17	17	17	16	16
4th	26	27	26	26	27	25	25
Top	43	43	46	47	47	50	50
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	43
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	11
3rd	18	18	17	17	17	16	16
4th	23	23	23	23	23	23	23
Top	36	36	38	38	38	41	42
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	22
Top	37	37	39	39	39	43	44
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, 1977-1988

TABLE O

	1977	1979	1981	1983	1985	1987	1988
Gini coefficients (per cent)							
Equivalised original income	43	44	46	48	49	51	51
Equivalised gross income	29	30	31	32	32	36	37
Equivalised disposable income	27	27	28	28	29	33	35
Equivalised post-tax income	29	29	31	31	32	36	39

Taxes and benefits as percentages of income by quintile groups of households⁽¹⁾, 1977-1988

TABLE P

	1977	1979	1981	1983	1985	1987	1988
Cash benefits as percentages of gross income:							
Bottom quintile group	58	68	64	66	72	72	73
2nd	27	29	33	41	43	42	39
3rd	12	13	14	17	16	16	14
4th	6	6	7	9	8	7	6
Top	3	3	3	4	3	3	2
Average over all households	13	14	14	17	16	15	13
Income tax, NIC and domestic rates as percentages of gross income:							
Bottom quintile group	18	12	14	13	13	13	15
2nd	20	16	17	16	16	16	17
3rd	22	20	21	22	20	20	20
4th	24	22	23	24	23	22	22
Top	24	23	24	25	25	24	22
Average over all households	23	20	22	22	22	21	21
Indirect taxes as percentages of disposable income:							
Bottom quintile group	23	21	26	27	27	27	29
2nd	21	21	23	23	23	23	25
3rd	21	22	23	24	23	23	24
4th	20	21	22	23	22	21	21
Top	17	19	19	19	18	16	16
Average over all households	20	21	22	22	21	20	20
Benefits in kind as percentages of final income:							
Bottom quintile group	40	39	43	41	39	42	44
2nd	30	30	31	31	29	30	31
3rd	23	22	23	23	22	21	21
4th	16	15	16	16	14	14	14
Top	9	8	8	9	7	6	6
Average over all households	20	19	20	20	18	17	17

¹Ranked by equivalised disposable income.

The composition (ie household type) of the top and bottom quintile groups of households⁽¹⁾, 1977-1988

TABLE Q

Percentages	1977	1979	1981	1983	1985	1987	1988
Bottom quintile group							
Household type							
Retired	56	65	53	45	47	48	51
Non-retired							
1 adult	5	6	5	9	9	7	10
2 adults	7	5	6	8	9	8	7
1 adult with children	7	6	7	8	7	9	10
2 adults with children	21	16	22	22	21	19	16
3 or more adults ⁽²⁾	5	4	7	8	6	8	5
All households in the bottom quintile group	100	100	100	100	100	100	100
Top quintile group							
Household type							
Retired	4	4	5	7	7	8	6
Non-retired							
1 adult	13	14	14	16	15	18	18
2 adults	43	44	42	38	41	40	41
1 adult with children	1	1	1	1	1	-	-
2 adults with children	20	18	19	22	20	20	20
3 or more adults ⁽²⁾	20	19	18	16	16	14	15
All households in the top quintile group	100	100	100	100	100	100	100

¹ Ranked by equivalised disposable income.

² With or without children.

Tenure type and average household size for the top and bottom quintile groups of households⁽¹⁾, 1977-1988

TABLE R

	1977	1979	1981	1983	1985	1987	1988
Bottom quintile group							
Tenure type (per cent)							
Public sector rented	44	47	51	44	47	47	49
Privately rented	17	15	11	11	10	9	8
Owner occupied	38	37	36	44	41	43	41
Rent-free	2	2	2	2	2	2	1
All tenure types	100	100	100	100	100	100	100
Average per household (number)							
Persons	2.4	2.2	2.5	2.6	2.4	2.4	2.2
Adults	1.6	1.6	1.7	1.7	1.7	1.7	1.6
Children	0.7	0.6	0.8	0.8	0.7	0.7	0.6
Economically active	0.5	0.4	0.6	0.4	0.4	0.3	0.3
Retired	0.8	0.9	0.8	0.7	0.7	0.7	0.7
Top quintile group							
Tenure type (per cent)							
Public sector rented	17	14	11	8	5	4	4
Privately rented	10	8	7	5	4	5	4
Owner occupied	71	77	80	85	89	89	91
Rent-free	2	2	2	2	2	1	1
All tenure types	100	100	100	100	100	100	100
Average per household (number)							
Persons	2.5	2.5	2.5	2.5	2.4	2.4	2.4
Adults	2.1	2.1	2.1	2.0	2.1	2.0	2.0
Children	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Economically active	1.9	1.9	1.8	1.7	1.7	1.7	1.7
Retired	0.1	0.1	0.1	0.2	0.2	0.2	0.1

¹ Ranked by equivalised disposable income.

APPENDIX 1

Detailed tables with fine breakdown of income components for quintile and decile groups, and results for different types of household, 1988

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General government expenditure in 1988

TABLE 1 (Appendix 1)

	£ million	Percentage of total expenditure
Allocated expenditure¹⁾		
Allocated cash benefits		
Contributory (National Insurance, etc)		
Retirement	19 470	11.0
Widows and guardians	890	0.5
Unemployment	1 260	0.7
Sickness/ Statutory sick pay	1 050	0.6
Invalidity	3 370	1.9
Maternity	260	0.1
Disablement	460	0.3
Other	280	0.2
Non-contributory		
Family benefits	5 270	3.0
Supplementary benefits	8 020	4.5
War pensions	570	0.3
Other	2 430	1.4
Student maintenance grants ⁽²⁾	850	0.5
Rent rebates and allowances	3 690	2.1
Allocated benefits in kind		
Health services	21 800	12.3
Education	20 280	11.4
School meals and welfare milk	660	0.4
Housing subsidy	1 400	0.8
Travel subsidies ⁽³⁾	1 080	0.6
	93 100	52.5
Unallocated expenditure		
Other current expenditure	59 210	33.4
Capital expenditure	4 020	2.3
Debt interest	18 030	10.2
Non-trading capital consumption	2 890	1.6
Total expenditure	177 250	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, 1989 edition, Table 9.4

Financing of general government expenditure in 1988

TABLE 2 (Appendix 1)

	£ million	Percentage of total financing
Allocated financing ⁽¹⁾		
Income tax ⁽²⁾	43 720	24.7
Employees' and self-employed NI contributions	15 170	8.6
Indirect taxes		
Domestic rates (net of rebates)	8 850	5.0
Taxes on final goods and services		
VAT	20 470	11.5
Duty on beer and cider	2 040	1.2
Duty on wines and spirits	2 130	1.2
Duty on tobacco	4 760	2.7
Duty on hydrocarbon oils	3 970	2.2
Car tax and vehicle excise duty	2 480	1.4
Other	2 730	1.5
Taxes and NI contributions on intermediate goods and services		
Employers' NI contributions	5 420	3.1
Commercial and industrial rates	4 500	2.5
Duty on hydrocarbon oils	2 290	1.3
VAT	1 480	0.8
Vehicle excise duty	600	0.3
Other	660	0.4
	121 270	68.4
Unallocated financing		
Employers' NI contributions not allocated	11 090	6.3
Indirect taxes		
Commercial and industrial rates not allocated	5 230	2.9
Other taxes on expenditure not allocated		
VAT	6 150	3.5
Duty on hydrocarbon oils	2 060	1.2
Other	4 630	2.6
Other taxes		
Corporation tax	15 810	8.9
Petroleum revenue tax	1 510	0.8
Taxes on capital	4 760	2.7
Other receipts ⁽³⁾	10 740	6.1
Non-trading capital consumption	2 890	1.6
Government borrowing requirement	-8 890	-5.0
Total financing	177 250	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, 1989 edition, Table 9.1

Average incomes, taxes and benefits, 1988

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> £)		4 816	6 910	9 594	13 701	
Number of households in the sample	1 453	1 453	1 453	1 453	1 453	7 265
Original income						
Earnings of main earner	740	3 089	7 400	10 829	19 499	8 311
Other earnings	86	471	1 942	3 827	6 195	2 504
Occupational pensions, annuities	160	503	788	830	1 304	717
Investment income	158	263	480	594	1 953	690
Other income	67	115	136	174	216	142
Total	1 211	4 440	10 746	16 255	29 166	12 364
Direct benefits in cash						
Contributory						
Retirement pension	1 374	1 312	679	406	298	814
Unemployment benefit	75	62	55	38	20	50
Invalidity pension and allowance	123	175	118	56	29	100
Statutory sick pay	3	18	33	42	35	26
Industrial injury disablement benefit	2	13	18	14	8	11
Sickness, industrial injury benefit	12	11	5	6	8	8
Widows' benefits	38	39	36	61	25	40
Statutory Maternity allowance/pay	3	6	11	12	10	9
Miscellaneous contributory benefits	8	9	4	3	2	5
Non-contributory						
Income support/ Supplementary benefit	675	249	125	57	19	225
Child benefit	244	228	298	242	154	233
Housing benefit	478	400	95	21	6	200
Invalid care allowance	2	10	11	1	2	5
Attendance allowance	7	42	52	14	16	26
Mobility allowance	14	42	40	16	15	25
War pensions	6	8	16	5	8	9
Severe disablement allowance	35	64	52	28	21	40
Student maintenance awards	37	30	28	21	27	29
Government training schemes	28	28	47	20	7	26
Family credit/ income supplement	29	27	10	3	-	14
Other non-contributory benefits	22	26	24	14	6	18
Total cash benefits	3 215	2 798	1 756	1 080	715	1 913
Gross income	4 426	7 239	12 501	17 336	29 881	14 277
Direct taxes and Employees' NIC						
Income tax	185	579	1 497	2 603	5 293	2 032
less: Tax relief at source (1)	35	68	192	325	514	227
Employees' NI contributions	53	229	613	944	1 214	610
Domestic rates (gross)	465	480	530	569	696	548
Total	667	1 220	2 448	3 792	6 689	2 963
Disposable income	3 759	6 019	10 053	13 544	23 192	11 313
<i>Equivalised disposable income</i>	3 836	5 741	8 228	11 423	21 323	10 110
(Standard error)	44	71	100	136	685	162
Indirect taxes						
Taxes on final goods and services						
VAT	358	511	891	1 125	1 589	895
Duty on tobacco	168	196	254	249	177	209
Duty on beer and cider	33	58	109	131	116	89
Duty on wines	7	9	22	35	81	31
Duty on spirits	28	44	62	80	109	65
Duty on hydrocarbon oils	62	99	192	243	277	174
Car Tax	7	16	37	52	68	36
Vehicle excise duty	33	50	95	111	126	83
Television licences	43	47	53	54	55	50
Stamp duty on house purchase	6	8	20	29	56	24
Customs' duties	20	26	40	48	60	39
Betting taxes	20	29	54	48	41	38
Other	9	13	15	18	20	15
Intermediate taxes						
Commercial and industrial rates	88	114	174	210	293	176
Employers' NI contributions	100	130	201	244	343	204
Duty on hydrocarbon oils	45	56	84	101	136	84
Vehicle excise duty	11	14	21	25	34	21
Other	42	55	83	99	136	83
Total indirect taxes	1 081	1 475	2 408	2 902	3 714	2 316
Post-tax income	2 678	4 544	7 645	10 642	19 478	8 997
Benefits in kind						
Education	793	792	961	812	416	755
National health service	1 122	1 062	977	822	717	940
Housing subsidy	104	104	47	28	11	59
Rail travel subsidy	9	11	28	27	52	25
Bus travel subsidy	33	34	23	20	15	25
School meals and welfare milk	62	22	20	13	8	25
Total	2 124	2 024	2 056	1 722	1 219	1 829
Final income	4 802	6 568	9 701	12 363	20 697	10 826

1 On mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1988

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 £)	4 018	4 816	5 667	6 910	8 202	9 594	11 320	13 701	17 860		
Number of households in the sample ..	727	726	727	726	727	726	727	726	727	726	7 265
Original income											
Earnings of main earner	487	994	1 804	4 375	6 584	8 217	10 013	11 647	14 277	24 728	8 311
Other earnings	62	111	241	702	1 498	2 387	3 236	4 419	5 687	6 703	2 504
Occupational pensions, annuities ..	110	210	354	652	697	879	793	866	974	1 633	717
Investment income	163	152	202	324	467	494	548	641	1 038	2 870	690
Other income	67	68	90	140	158	113	170	179	200	232	142
Total	888	1 534	2 691	6 192	9 404	12 089	14 760	17 753	22 176	36 166	12 364
Direct benefits in cash											
Contributory											
Retirement pension	1 147	1 603	1 552	1 071	764	594	488	324	306	290	814
Unemployment benefit	82	68	59	65	47	64	53	22	26	13	50
Incapacity pension and allowance ..	103	143	147	203	129	107	60	52	42	17	100
Statutory sick pay	1	4	12	24	29	37	38	46	41	30	26
Industrial injury disablement benefit	3	-	12	13	17	19	9	18	9	6	11
Sickness, industrial injury benefit	18	5	17	5	6	4	4	7	8	8	8
Widows' benefits	35	41	26	52	46	27	64	58	32	17	40
Statutory Maternity allowance/pay	3	4	3	9	10	13	16	9	12	9	9
Miscellaneous contributory benefits	6	10	9	8	5	4	3	3	2	2	5
Non-contributory											
Income support/Supplementary benefit	795	554	267	231	150	100	83	32	19	19	225
Child benefit	275	212	172	283	311	284	273	211	164	144	233
Housing benefit	390	566	549	252	117	73	28	15	7	5	200
Invalid care allowance	5	-	8	12	11	10	-	2	2	2	5
Attendance allowance	3	11	38	47	60	44	18	10	19	14	26
Mobility allowance	10	18	21	63	50	30	22	10	14	15	25
War pensions	3	9	8	8	19	13	5	6	4	12	9
Severe disablement allowance ..	16	53	61	67	61	42	42	14	21	21	40
Student maintenance awards ..	53	22	27	32	37	19	21	21	44	11	29
Government training schemes ..	25	31	17	38	46	48	23	18	10	5	26
Family credit/income supplement	24	34	28	26	10	9	-	5	-	-	14
Other non-contributory benefits ..	14	29	36	15	24	24	20	8	5	7	18
Total cash benefits	3 013	3 417	3 070	2 526	1 947	1 564	1 270	891	786	644	1 913
Gross income	3 901	4 951	5 761	8 718	11 351	13 654	16 029	18 644	22 962	36 810	14 277
Direct taxes and Employees' NIC											
Income tax	223	147	379	779	1 253	1 742	2 322	2 885	3 923	6 665	2 032
less: Tax relief at source (i) ..	37	34	49	88	165	219	292	358	434	594	227
Employees' NI contributions ..	32	73	123	336	518	708	872	1 015	1 204	1 223	610
Domestic rates (gross)	474	455	463	497	515	546	560	579	623	768	548
Total	693	641	916	1 524	2 121	2 776	3 462	4 122	5 317	8 063	2 963
Disposable income	3 208	4 311	4 845	7 194	9 230	10 878	12 568	14 521	17 645	28 747	11 313
Equivalised disposable income ..	3 236	4 436	5 207	6 275	7 562	8 896	10 415	12 432	15 606	27 048	10 110
(Standard error)	56	42	56	91	99	107	126	156	218	1 291	162)
Indirect taxes											
Taxes on final goods and services											
VAT	370	346	384	638	806	975	1 049	1 201	1 402	1 776	895
Duty on tobacco	162	175	166	226	248	260	240	258	202	152	209
Duty on beer and cider	31	36	43	74	95	123	128	134	116	116	89
Duty on wines	7	8	7	11	20	24	30	39	55	107	31
Duty on spirits	26	29	39	48	55	70	84	77	103	115	65
Duty on hydrocarbon oils ..	63	61	69	128	178	206	225	261	275	278	174
Car tax	10	4	6	25	31	44	43	61	68	67	36
Vehicle excise duty	34	33	36	64	85	105	104	118	128	124	83
Television licences	43	43	45	49	53	54	54	54	54	56	50
Stamp duty on house purchase ..	7	5	6	10	18	23	25	34	45	66	24
Customs' duties	21	19	19	33	37	43	46	50	58	63	39
Betting taxes	19	22	23	36	51	57	42	55	44	37	38
Other	9	8	12	15	14	15	18	18	17	22	15
Intermediate taxes											
Commercial and industrial rates ..	90	86	92	135	164	184	199	220	252	334	176
Employers' NI contributions ..	102	98	105	156	190	212	231	257	294	392	204
Duty on hydrocarbon oils	45	44	46	86	82	87	94	107	116	155	84
Vehicle excise duty	11	10	11	16	20	21	23	27	29	40	21
Other	43	41	44	66	79	87	95	104	118	154	83
Total indirect taxes	1 094	1 068	1 154	1 796	2 225	2 591	2 730	3 075	3 376	4 053	2 316
Post-tax income	2 115	3 242	3 691	5 399	7 004	8 287	9 838	11 447	14 270	24 694	8 997
Benefits in kind											
Education	939	648	529	1 055	1 047	875	915	708	500	332	755
National health service	1 098	1 147	1 083	1 041	997	957	865	779	734	701	940
Housing subsidy	93	115	122	85	53	40	33	23	15	7	59
Rail travel subsidy	9	8	12	10	17	39	24	29	49	55	25
Bus travel subsidy	28	38	38	30	24	22	21	20	15	14	25
School meals and welfare milk ..	83	42	21	22	22	18	15	11	10	5	25
Total	2 250	1 997	1 805	2 244	2 160	1 952	1 874	1 570	1 323	1 114	1 829
Final income	4 364	5 240	5 496	7 642	9 165	10 239	11 711	13 017	15 592	25 808	10 826

i On mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1988

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 (equivalised £)	4 023	4 843	5 345	6 811		
Number of households in the sample ..	205	206	205	206	205	1 027
Original income	304	404	465	1 164	6 122	1 690
Direct benefits in cash						
Contributory						
Retirement pension	2 117	2 156	2 144	2 162	2 068	2 129
Sickness/ injury related	6	21	7	21	75	26
Unemployment benefit	-	-	-	-	6	1
Other	19	14	46	13	68	32
Total contributory	2 142	2 191	2 196	2 196	2 216	2 188
Non-contributory						
Income support/ Supplementary benefit	50	42	74	84	39	58
Child benefit	-	-	-	-	-	-
Housing benefit	148	505	796	673	116	448
Sickness/ disablement related	-	22	15	73	200	62
Other	-	32	30	10	104	35
Total non-contributory	198	600	914	841	459	603
Gross income	2 644	3 194	3 576	4 202	8 798	4 481
Income tax ⁽¹⁾ and Employees' NIC	106	35	45	157	1 315	331
Domestic rates(gross)	481	410	419	464	581	471
Disposable income	2 057	2 749	3 112	3 581	6 902	3 679
<i>Equivalised disposable income</i>	3 373	4 506	5 101	5 870	11 314	6 031
Taxes on final goods and services	352	327	355	410	758	440
Intermediate taxes	186	159	168	199	321	207
Post-tax income	1 520	2 263	2 589	2 971	5 822	3 032
Benefits in kind						
Education	-	-	-	-	-	-
National health service	1 193	1 049	1 046	1 003	944	1 047
Housing subsidy	39	102	150	129	57	95
Travel subsidies	37	43	46	44	44	43
School meals and welfare milk	-	1	-	-	-	-
Final income	2 789	3 458	3 831	4 147	6 866	4 217
(ii) 2 or more adults retired						
Quintile points (equivalised £)	4 155	4 833	6 253	8 699		
Number of households in the sample ..	171	172	171	172	171	857
Original income	647	822	2 086	4 769	14 263	4 514
Direct benefits in cash						
Contributory						
Retirement pension	3 043	3 425	3 370	3 061	3 000	3 180
Sickness/ injury related	104	96	150	295	319	193
Unemployment benefit	31	22	11	15	35	23
Other	29	18	17	45	28	27
Total contributory	3 207	3 561	3 548	3 417	3 382	3 423
Non-contributory						
Income support/ Supplementary benefit	169	137	136	73	27	108
Child benefit	15	-	7	-	7	6
Housing benefit	185	444	263	108	12	203
Sickness/ disablement related	7	99	314	407	256	217
Other	41	60	78	61	24	53
Total non-contributory	417	740	797	649	326	586
Gross income	4 271	5 123	6 432	8 834	17 971	8 523
Income tax ⁽¹⁾ and Employees' NIC	101	58	268	726	2 990	828
Domestic rates(gross)	496	472	511	556	780	563
Disposable income	3 674	4 592	5 653	7 552	14 201	7 132
<i>Equivalised disposable income</i>	3 573	4 478	5 469	7 307	13 243	6 812
Taxes on final goods and services	721	741	931	1 324	2 017	1 146
Intermediate taxes	296	272	329	448	700	409
Post-tax income	2 657	3 579	4 394	5 780	11 484	5 577
Benefits in kind						
Education	51	-	22	-	88	32
National health service	1 772	1 587	1 597	1 465	1 374	1 559
Housing subsidy	46	115	90	60	4	63
Travel subsidies	66	74	71	65	75	70
School meals and welfare milk	7	-	2	-	-	2
Final income	4 599	5 355	6 176	7 370	13 025	7 303

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

Average Incomes, taxes and benefits, 1988

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 £)		4 925	8 943	12 213	16 902	
Number of households in the sample ..	162	162	163	162	162	811
Original income	607	3 732	8 108	11 430	18 911	8 557
Direct benefits in cash						
Contributory						
Retirement pension	25	102	73	43	39	56
Sickness/ injury related	165	250	73	37	78	121
Unemployment benefit	121	65	12	5	5	42
Other	170	126	154	120	66	127
Total contributory	481	543	313	205	188	346
Non-contributory						
Income support/ Supplementary benefit ..	796	265	35	13	2	222
Child benefit	-	-	2	5	-	1
Housing benefit	649	364	40	3	11	213
Sickness/ disablement related	84	219	61	11	24	80
Other	138	35	13	2	25	43
Total non-contributory	1 666	883	150	33	62	558
Gross income	2 755	5 158	8 571	11 667	19 161	9 461
Income tax ⁽¹⁾ and Employees' NIC	62	620	1 730	2 508	3 795	1 743
Domestic rates(gross)	386	404	441	433	538	441
Disposable income	2 307	4 134	6 399	8 727	14 827	7 278
Equivalised disposable income	3 781	6 777	10 491	14 306	24 307	11 931
Taxes on final goods and services	533	805	1 232	1 400	1 826	1 159
Intermediate taxes	188	249	362	408	610	363
Post-tax income	1 585	3 080	4 805	6 919	12 391	5 755
Benefits in kind						
Education	337	143	-	41	-	104
National health service	263	283	268	252	252	264
Housing subsidy	99	85	50	22	20	55
Travel subsidies	22	31	25	24	59	32
School meals and welfare milk	-	-	-	-	-	-
Final income	2 306	3 622	5 149	7 259	12 723	6 210
(iv) 2 adults non-retired						
Quintile points (equivalised £)		7 320	10 220	13 525	18 227	
Number of households in the sample ..	304	304	304	304	304	1 520
Original income	4 031	9 851	15 058	20 306	36 950	17 239
Direct benefits in cash						
Contributory						
Retirement pension	574	598	267	199	191	366
Sickness/ injury related	476	216	122	91	62	193
Unemployment benefit	106	55	23	21	15	44
Other	38	50	55	24	5	34
Total contributory	1 194	920	468	335	272	638
Non-contributory						
Income support/ Supplementary benefit ..	407	75	37	17	1	107
Child benefit	-	3	-	2	10	3
Housing benefit	282	103	23	8	-	83
Sickness/ disablement related	269	195	27	75	21	117
Other	162	62	10	22	23	56
Total non-contributory	1 120	438	97	124	56	367
Gross income	6 345	11 209	15 623	20 765	37 278	18 244
Income tax ⁽¹⁾ and Employees' NIC	626	1 737	3 023	4 321	7 597	3 461
Domestic rates(gross)	469	504	528	580	740	564
Disposable income	5 250	8 968	12 072	15 864	28 941	14 219
Equivalised disposable income	5 140	8 787	11 867	15 650	28 711	14 031
Taxes on final goods and services	1 238	1 720	2 169	2 555	3 052	2 147
Intermediate taxes	368	509	636	759	1 049	664
Post-tax income	3 644	6 739	9 267	12 551	24 640	11 408
Benefits in kind						
Education	303	136	55	45	34	115
National health service	766	698	584	549	557	631
Housing subsidy	78	46	27	18	1	34
Travel subsidies	37	77	43	64	61	56
School meals and welfare milk	-	-	-	-	-	-
Final income	4 829	7 696	9 977	13 228	25 492	12 244

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

Average Incomes, taxes and benefits, 1988

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 £)		7 171	9 074	11 410	14 656	
Number of households in the sample	128	129	128	129	128	642
Original income	6 887	14 008	18 679	24 866	40 060	20 896
Direct benefits in cash						
Contributory						
Retirement pension	704	539	499	341	258	468
Sickness/ injury related	668	347	277	257	147	339
Unemployment benefit	206	134	132	33	31	107
Other	67	52	58	52	11	48
Total contributory	1 645	1 071	966	684	448	963
Non-contributory						
Income support/ Supplementary benefit	718	305	127	58	47	251
Child benefit	9	12	6	9	6	8
Housing benefit	265	75	33	3	11	77
Sickness/ disablement related	356	212	262	61	96	197
Other	505	320	209	119	78	246
Total non-contributory	1 852	924	636	250	237	779
Gross income	10 384	16 002	20 282	25 801	40 745	22 637
Income tax ^{1a} and Employees' NIC	1 189	2 555	3 556	5 139	8 596	4 206
Domestic rates(gross)	509	513	518	562	802	581
Disposable income	8 686	12 934	16 208	20 099	31 347	17 851
Equivalised disposable income	5 570	8 182	10 115	12 900	20 280	11 407
Taxes on final goods and services	1 999	2 764	3 098	3 501	3 782	3 029
Intermediate taxes	593	741	837	907	1 239	863
Post-tax income	6 094	9 429	12 273	15 691	26 326	13 958
Benefits in kind						
Education	1 276	666	637	387	443	681
National health service	1 039	995	980	939	907	972
Housing subsidy	86	62	47	26	18	48
Travel subsidies	73	72	62	91	129	85
School meals and welfare milk	1	-	-	-	-	-
Final income	8 569	11 224	13 999	17 134	27 823	15 745
(vi) 1 adult with children⁽¹⁾						
Quintile points (equivalised £)		3 899	4 502	5 155	7 781	
Number of households in the sample	56	57	56	57	56	282
Original income	239	475	772	4 158	11 523	3 425
Direct benefits in cash						
Contributory						
Retirement pension	-	-	-	-	-	-
Sickness/ injury related	62	-	82	33	43	44
Unemployment benefit	5	-	-	12	15	6
Other	162	92	37	177	312	156
Total contributory	229	92	119	222	371	206
Non-contributory						
Income support/ Supplementary benefit	1 379	2 077	2 005	779	436	1 336
Child benefit	809	742	639	694	715	720
Housing benefit	970	1 040	1 224	514	320	813
Sickness/ disablement related	-	-	23	22	-	9
Other	144	151	110	469	30	182
Total non-contributory	3 302	4 010	4 001	2 477	1 500	3 060
Gross income	3 770	4 577	4 893	6 857	13 394	6 691
Income tax ^{1a} and Employees' NIC	-39	-2	1	300	1 888	428
Domestic rates(gross)	510	468	472	502	527	496
Disposable income	3 299	4 111	4 420	6 054	10 979	5 768
Equivalised disposable income	3 237	4 193	4 776	6 197	11 355	5 946
Taxes on final goods and services	699	628	626	1 158	1 472	916
Intermediate taxes	255	242	238	394	532	332
Post-tax income	2 345	3 241	3 556	4 503	8 975	4 519
Benefits in kind						
Education	1 712	1 678	1 844	2 264	2 010	1 902
National health service	878	896	818	575	574	748
Housing subsidy	256	156	172	146	30	152
Travel subsidies	31	18	21	17	18	21
School meals and welfare milk	276	235	198	108	58	175
Final income	5 498	6 224	6 608	7 612	11 664	7 517

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, 1988

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 £)		6 199	8 463	10 662	14 268	
Number of households in the sample ..	114	113	114	113	114	568
Original income	4 677	10 113	13 494	18 329	35 391	16 408
Direct benefits in cash						
Contributory						
Retirement pension	19	40	-	20	6	17
Sickness/injury related	253	99	109	41	75	116
Unemployment benefit	209	97	112	42	18	95
Other	185	97	100	94	81	111
Total contributory	665	333	320	197	179	339
Non-contributory						
Income support/ Supplementary benefit ..	902	168	84	-	70	245
Child benefit	360	368	378	390	378	379
Housing benefit	455	74	49	4	15	120
Sickness/ disablement related	52	53	11	30	86	46
Other	149	30	17	43	169	82
Total non-contributory	1 938	693	540	468	717	872
Gross income	7 279	11 139	14 354	18 994	36 287	17 620
Income tax ⁽¹⁾ and Employees' NIC	1 326	1 756	2 303	3 605	7 438	3 288
Domestic rates(gross)	488	480	540	611	715	567
Disposable income	5 466	8 904	11 511	14 779	28 133	13 765
Equivalised disposable income	4 496	7 439	9 652	12 242	23 143	11 400
Taxes on final goods and services	1 352	1 720	1 840	2 241	2 900	2 011
Intermediate taxes	425	504	589	727	1 046	658
Post-tax income	3 689	6 679	9 082	11 811	24 187	11 096
Benefits in kind						
Education	1 038	726	785	899	702	830
National health service	960	945	986	904	1 067	973
Housing subsidy	96	57	32	11	13	42
Travel subsidies	40	24	30	28	60	36
School meals and welfare milk	52	15	11	20	19	23
Final income	5 876	8 447	10 926	13 673	26 048	13 001
(viii) 2 adults 2 children						
Quintile points (equivalised £)		5 999	7 680	9 525	12 451	
Number of households in the sample ..	174	174	174	174	174	870
Original income	5 078	11 345	14 550	18 970	33 857	16 760
Direct benefits in cash						
Contributory						
Retirement pension	-	13	-	-	31	9
Sickness/injury related	337	55	35	46	24	99
Unemployment benefit	125	36	16	41	26	49
Other	6	40	8	11	28	19
Total contributory	469	144	59	98	109	176
Non-contributory						
Income support/ Supplementary benefit ..	810	92	5	74	8	198
Child benefit	757	750	735	742	735	744
Housing benefit	394	81	17	10	1	101
Sickness/ disablement related	112	33	57	-	33	47
Other	79	56	27	30	16	41
Total non-contributory	2 151	1 012	840	856	793	1 130
Gross income	7 698	12 501	15 448	19 923	34 759	18 066
Income tax ⁽¹⁾ and Employees' NIC	963	1 914	2 590	3 573	6 256	3 059
Domestic rates(gross)	487	549	584	666	807	619
Disposable income	6 247	10 037	12 274	15 685	27 697	14 388
Equivalised disposable income	4 370	6 982	8 567	10 880	19 237	10 007
Taxes on final goods and services	1 574	1 813	2 096	2 394	2 963	2 168
Intermediate taxes	485	610	655	780	1 133	733
Post-tax income	4 188	7 614	9 523	12 511	23 601	11 487
Benefits in kind						
Education	2 033	2 076	2 051	2 127	1 507	1 959
National health service	1 069	1 023	1 150	1 038	1 062	1 068
Housing subsidy	109	50	12	13	3	37
Travel subsidies	21	26	22	32	63	33
School meals and welfare milk	128	54	49	45	36	62
Final income	7 547	10 843	12 807	15 766	26 272	14 647

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

Average incomes, taxes and benefits, 1988

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 £)	4 542	6 334	8 160	10 933		
Number of households in the sample ..	65	65	64	65	65	324
Original income	3 034	10 080	13 472	18 594	34 385	15 921
Direct benefits in cash						
Contributory						
Retirement pension	-	-	-	-	-	-
Sickness/ injury related	200	132	54	79	13	96
Unemployment benefit	325	47	23	45	26	93
Other	22	-	7	44	6	16
Total contributory	548	179	84	169	45	205
Non-contributory						
Income support/ Supplementary benefit ..	1 483	83	100	181	46	380
Child benefit	1 355	1 315	1 140	1 204	1 106	1 224
Housing benefit	556	169	32	18	29	161
Sickness/ disablement related	129	111	94	84	-	84
Other	260	190	15	43	44	111
Total non-contributory	3 784	1 869	1 383	1 530	1 225	1 960
Gross income	7 365	12 128	14 939	20 292	35 655	18 086
Income tax ⁽¹⁾ and Employees' NIC	374	1 899	2 313	3 704	6 349	2 930
Domestic rates(gross)	478	544	549	630	860	612
Disposable income	6 513	9 685	12 078	15 958	28 447	14 544
Equivalised disposable income	3 654	5 478	7 108	9 264	17 021	8 509
Taxes on final goods and services	1 365	1 836	1 791	2 323	3 096	2 083
Intermediate taxes	447	576	630	806	1 398	772
Post-tax income	4 702	7 274	9 657	12 828	23 952	11 689
Benefits in kind						
Education	3 842	3 387	3 784	3 391	2 961	3 472
National health service	1 584	1 370	1 408	1 480	1 378	1 444
Housing subsidy	157	157	53	34	10	82
Travel subsidies	25	15	21	44	72	35
School meals and welfare milk	298	91	58	80	72	120
Final income	10 609	12 294	14 981	17 857	28 445	16 843
(x) 3 or more adults with children						
Quintile points (equivalised £)	6 014	7 946	9 796	12 292		
Number of households in the sample ..	73	73	72	73	73	364
Original income	7 280	14 380	19 400	24 615	39 177	20 975
Direct benefits in cash						
Contributory						
Retirement pension	221	263	126	314	181	221
Sickness/ injury related	246	137	162	59	183	158
Unemployment benefit	226	195	113	42	45	124
Other	37	57	61	81	8	49
Total contributory	730	652	461	495	418	551
Non-contributory						
Income support/ Supplementary benefit ..	1 480	455	192	150	23	461
Child benefit	801	587	474	525	568	591
Housing benefit	356	77	35	16	-	97
Sickness/ disablement related	75	169	236	78	111	134
Other	401	380	220	305	91	280
Total non-contributory	3 112	1 667	1 157	1 074	793	1 562
Gross income	11 122	16 699	21 018	26 185	40 388	23 088
Income tax ⁽¹⁾ and Employees' NIC	1 295	2 791	3 768	5 273	7 797	4 186
Domestic rates(gross)	482	568	587	619	885	628
Disposable income	9 345	13 339	16 663	20 292	31 706	18 274
Equivalised disposable income	4 527	6 998	8 850	10 785	16 595	9 553
Taxes on final goods and services	2 323	2 814	3 208	3 338	4 216	3 180
Intermediate taxes	711	805	922	926	1 409	954
Post-tax income	6 311	9 721	12 533	16 029	26 080	14 139
Benefits in kind						
Education	3 268	2 694	2 081	2 381	2 254	2 537
National health service	1 536	1 206	1 143	1 156	1 297	1 268
Housing subsidy	126	59	50	45	15	59
Travel subsidies	91	48	71	76	71	71
School meals and welfare milk	208	47	35	28	16	67
Final income	11 539	13 776	15 914	19 715	29 733	18 141

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

Distribution of households⁽¹⁾ co-operating in the Family Expenditure Survey, 1988

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	204	135	80	62	17	69	38	59	42	21	727	
2nd	192	206	71	45	14	79	28	36	34	21	726	
3rd	305	119	48	57	30	39	26	58	26	19	727	
4th	127	107	51	114	53	27	53	96	53	45	726	
5th	53	95	50	122	79	21	68	151	42	46	727	
6th	51	70	57	143	99	17	64	127	41	57	726	
7th	34	39	93	162	88	16	95	113	26	61	727	
8th	23	32	105	223	103	8	72	95	25	40	726	
9th	17	31	116	270	100	4	71	69	15	34	727	
Top	21	23	140	322	59	2	53	66	20	20	726	
All households ..	1 027	857	811	1 520	642	282	568	870	324	364	7 265	

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, 68 per cent of government financing (including the Borrowing Requirement) and 53 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 1988, containing detailed data on household characteristics, income, and expenditure, was published in February 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 1988 was 7,265. The response rate in Great Britain was 71 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.

Unit of analysis

5. The basic unit of analysis in the article is the household, and not the family, individual or tax 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.

6. 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.

7. 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'.

8. 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.

9. 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 (26 in 1988) 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.

10. 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

11. 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.

12. 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.

13. 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.

14. 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.

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

16. 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.

17. 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.

18. 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 have been 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 be showing the community charge as a deduction before disposable income is produced].

19. 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 1988 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.

20. 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

21. 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.

22. 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.

23. 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).

24. 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

25. 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.

26. 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)

27. 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.

28. 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.

29. 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.

30. 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 14 and 18 respectively).

31. 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.

32. 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.

33. 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

34. 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.

35. The equivalence values are given below:

Type of household member	Equivalence value
a. married head of household	
(ie a married couple of 2 adults)	1.00
1st additional adult	0.42
2nd (or more) additional adult	0.36 (per adult)
b. single head of household	
(ie 1 adult)	0.61
1st additional adult	0.46
2nd additional adult	0.42
3rd (or more) additional adult	0.36 (per adult)
c. Child aged:	
16-18	0.36
13-15	0.27
11-12	0.25
8-10	0.23
5-7	0.21
2-4	0.18
Under 2	0.09

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 ($=£20,000/1.86$).

36. 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

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

38. 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

Diagram A

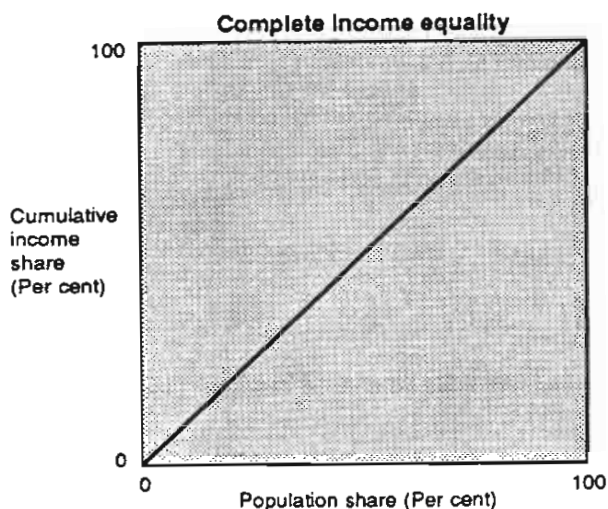
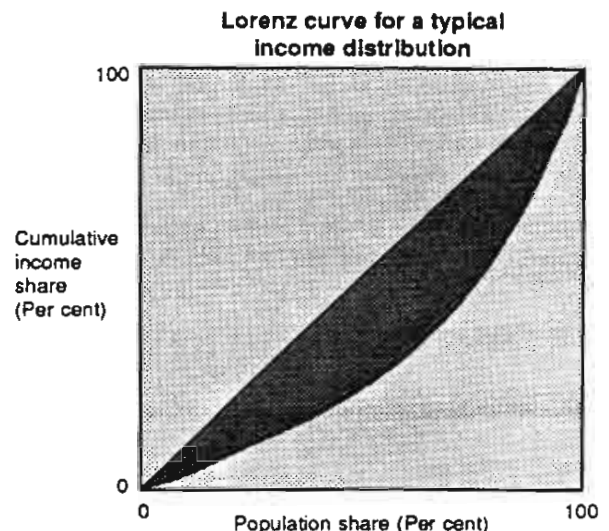


Diagram B



equivalised 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 equivalisation was used].

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

Sampling errors and reliability

40. 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.

41. 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 1.36 for 1988, 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 43).

42. 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 £11,313 (see Table 3 in Appendix 1), and its standard error is £188 (from Table 1). So the confidence interval for the population value

is £11,313 ± £368 ie about (£10,950 to £11,700). It is very likely that the mean disposable income for the whole population (ie all UK private households) will lie in this range.

43. 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 (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 41) to give the standard errors shown in the tables for quintile and decile groups.

44. 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 equivalised disposable income, 1988

Decile group		Quintile group	
Bottom	1.82	Bottom	1.95
2nd	4.83	2nd	4.41
3rd	6.32	3rd	4.91
4th	6.74	4th	4.43
5th	7.07	Top	1.45
6th	7.16	All	1.36
7th	6.83		
8th	6.25		
9th	4.91		
Top	1.45		
All	1.36		

For the 'all households' group the ratio merely reflects the fact that the simple random sample figure is multiplied by the design factor (1.36 in 1988) to produce the 'complex' standard error. For the middle quintile group, the quoted standard error is about five times larger than it would have been if we had merely used the simple random sample estimate (as we did in last year's article). The quoted standard errors for the middle decile groups are about seven times higher than the simple random sample estimates.

45. 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.

46. 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 1988. 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.

Previous articles

47. 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.

48. The results for 1987 (the first year of using the new methodology) were published in the May 1990 edition of *Economic Trends*. This year's and last year's articles have such a marked change in methodology that the results are completely incompatible with those for earlier years.

49. 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 1977-1988. Enquiries should be addressed to Dave Westcott, Branch E2, Central Statistical Office, Room 1936, Millbank Tower, Millbank, London SW1P 4QQ.

Standard errors of the mean, 1988

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	.. ..	7 265	241	231	188	162	175	180
Non-retired	.. ..	5 381	298	288	238	209	225	230
Retired	.. ..	1 884	165	166	126	124	107	113
Quintile groups ⁽¹⁾								
Bottom	.. ..	1 453	114	107	90	44	85	163
2nd	.. ..	1 453	550	469	315	71	251	421
3rd	.. ..	1 453	658	570	432	100	363	534
4th	.. ..	1 453	725	706	538	136	464	609
Top	.. ..	1 453	908	906	780	685	761	772
Decile groups ⁽¹⁾								
Bottom	.. ..	727	130	132	110	56	116	236
2nd	.. ..	726	439	377	310	42	247	501
3rd	.. ..	727	1 022	896	490	56	372	683
4th	.. ..	726	1 122	932	696	91	583	993
5th	.. ..	727	1 200	1 000	780	99	656	1 068
6th	.. ..	726	1 395	1 244	931	107	786	1 101
7th	.. ..	727	1 502	1 453	1 087	126	949	1 303
8th	.. ..	726	1 435	1 422	1 100	156	943	1 220
9th	.. ..	727	1 418	1 417	1 066	218	947	1 128
Top	.. ..	726	1 676	1 674	1 460	1 291	1 436	1 450
Household type								
1 adult retired	.. ..	1 027	138	131	95	156	88	89
2 or more adults retired	.. ..	857	309	298	222	196	192	197
1 adult non-retired	.. ..	811	345	311	241	395	216	215
2 adults non-retired	.. ..	1 520	664	649	582	581	570	569
3 or more adults non-retired	.. ..	642	902	859	581	383	536	560
1 adult with children	.. ..	282	499	431	329	342	303	356
2 adults and 1 child	.. ..	568	1 150	1 131	893	687	868	871
2 adults and 2 children	.. ..	870	589	569	474	325	449	444
2 adults with 3 or more children	.. ..	324	964	906	703	424	638	651
3 or more adults with children	.. ..	364	937	878	653	329	598	610

1) Households ranked by equivalised disposable income.

Standard errors for disposable income for quintile groups⁽¹⁾ within household type, 1988

TABLE 2 (Appendix 2)

	Number 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	7 265	90	315	432	538	780	188
Non-retired	5 381	164	392	585	700	1 016	238
Retired	1 884	92	214	273	368	508	126
1 adult retired	1 027	47	44	30	78	390	95
2 or more adults retired	857	116	158	268	372	840	222
1 adult non-retired	811	92	249	221	286	734	241
2 adults non-retired	1 520	203	225	295	369	2 638	582
3 or more adults non-retired	642	425	794	1 154	1 276	2 139	581
1 adult with children	282	270	459	571	886	1 275	329
2 adults with 1 child	568	300	396	515	651	4 080	893
2 adults 2 children	870	292	330	458	600	1 876	474
2 adults with 3 or more children	324	418	731	895	1 650	2 429	703
3 or more adults with children	364	642	1 082	1 363	1 327	2 128	653

¹ Ranked by equivalised disposable income.

Standard errors for unadjusted disposable income expressed as a percentage of the mean, 1977 to 1988

TABLE 3 (Appendix 2)

	Number in sample (1988)	Standard error for mean unadjusted disposable income expressed as a percentage of the mean (%)						
		1977	1979	1981	1983	1985	1987	1988
Household type								
All households	7 265	1.0	1.0	1.2	1.1	1.2	1.2	1.7
Non-retired	5 381	1.0	1.0	1.2	1.1	1.2	1.2	1.8
Retired	1 884	2.0	1.9	2.0	2.0	2.2	2.7	2.4
1 adult retired	1 027	2.0	2.0	2.1	2.1	2.0	4.0	2.6
2 or more adults retired	857	2.5	2.3	2.4	2.6	2.9	3.3	3.1
1 adult non-retired	811	3.1	3.2	3.9	3.4	3.3	4.0	3.3
2 adults non-retired	1 520	2.0	1.6	2.9	2.4	2.0	2.0	4.1
3 or more adults non-retired	642	2.0	2.3	2.1	2.4	2.5	3.1	3.3
1 adult with children	282	5.3	5.9	13.0	4.9	4.6	4.4	5.7
2 adults with 1 child	568	2.4	2.4	2.7	2.6	3.0	3.0	6.5
2 adults 2 children	870	2.0	2.2	1.9	2.3	2.6	3.1	3.3
2 adults with 3 or more children	324	3.2	3.1	3.9	3.7	5.7	5.0	4.8
3 or more adults with children	364	2.2	2.3	2.8	2.5	3.1	3.2	3.6

APPENDIX 3

Three tables for 1988, ranked using *unadjusted* disposable income

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Table

Average income, taxes and benefits, ranked by unadjusted disposable income, 1988

By quintile groups of households	1
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Average incomes, taxes and benefits, 1988

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>		4 144	7 339	11 162	16 296	
Number of households in the sample	1 453	1 453	1 453	1 453	1 453	7 265
Original income						
Earnings of main earner	289	2 451	7 278	11 135	20 404	8 311
Other earnings	18	115	1 130	3 293	7 965	2 504
Occupational pensions, annuities	256	750	818	726	1 034	717
Investment income	184	391	504	678	1 891	690
Other income	46	101	151	141	269	142
Total	793	3 808	9 881	15 973	31 363	12 364
Direct benefits in cash						
Contributory						
Retirement pension	1 552	1 340	613	312	252	814
Unemployment benefit	34	68	65	50	33	50
Invalidity pension and allowance	65	187	133	82	33	100
Statutory sick pay	1	13	32	43	42	26
Industrial injury disablement benefit	4	15	14	9	12	11
Sickness, industrial injury benefit	5	14	5	8	9	8
Widows' benefits	34	61	46	38	19	40
Statutory Maternity allowance/pay	2	6	11	14	11	9
Miscellaneous contributory benefits	10	8	4	2	2	5
Non-contributory						
Income support/ Supplementary benefit	369	440	159	98	59	225
Child benefit	63	190	294	323	296	233
Housing benefit	538	332	91	32	9	200
Invalid care allowance	3	3	11	7	3	5
Attendance allowance	5	47	38	23	19	26
Mobility allowance	14	45	27	23	17	25
War pensions	7	11	10	6	9	9
Severe disablement allowance	22	72	45	29	32	40
Student maintenance awards	20	27	32	19	45	29
Government training schemes	6	18	29	37	39	26
Family credit/ income supplement	7	35	20	5	2	14
Other non-contributory benefits	19	40	16	15	2	18
Total cash benefits	2 778	2 973	1 695	1 175	944	1 913
Gross income	3 571	6 781	11 576	17 149	32 307	14 277
Direct taxes and Employees' NIC						
Income tax	154	536	1 433	2 508	5 526	2 032
less: Tax relief at source ⁽¹⁾	15	60	197	348	514	227
Employees' NI contributions	17	167	563	936	1 370	610
Domestic rates (gross)	448	483	516	568	725	548
Total	604	1 126	2 315	3 664	7 108	2 963
Disposable income	2 967	5 654	9 261	13 485	25 199	11 313
Indirect taxes						
Taxes on final goods and services						
VAT	247	487	808	1 157	1 774	895
Duty on tobacco	100	199	237	262	246	209
Duty on beer and cider	21	54	93	125	153	89
Duty on wines	6	12	21	35	81	31
Duty on spirits	22	47	55	82	117	65
Duty on hydrocarbon oils	34	95	173	248	322	174
Car tax	3	15	33	56	72	36
Vehicle excise duty	19	53	85	114	144	83
Television licences	40	48	53	56	57	50
Stamp duty on house purchase	5	9	21	34	52	24
Customs' duties	13	23	38	50	69	39
Betting taxes	14	29	49	47	53	38
Other	8	11	14	18	23	15
Intermediate taxes						
Commercial and industrial rates	67	110	161	214	327	176
Employers' NI contributions	76	125	186	249	382	204
Duty on hydrocarbon oils	33	54	78	103	153	84
Vehicle excise duty	8	13	19	26	39	21
Other	32	53	78	101	152	83
Total indirect taxes	747	1 437	2 203	2 976	4 217	2 316
Post-tax income	2 220	4 217	7 059	10 510	20 982	8 997
Benefits in kind						
Education	202	572	908	1 060	1 033	755
National health service	978	1 020	912	885	905	940
Housing subsidy	104	95	51	29	15	59
Rail travel subsidy	6	11	24	31	53	25
Bus travel subsidy	32	34	20	19	19	25
School meals and welfare milk	17	44	25	22	18	25
Total	1 339	1 775	1 940	2 046	2 043	1 829
Final income	3 559	5 992	8 999	12 556	23 026	10 826

¹ On mortgage interest and life assurance premiums.

Average incomes, taxes and benefits, 1988

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>	3 050	4 144	5 604	7 339	9 343	11 162	13 340	16 296	21 089		
Number of households in the sample	727	726	727	726	727	726	727	726	727	726	7 265
Original income											
Earnings of main earner	228	350	1 236	3 868	6 150	8 407	10 254	12 016	14 833	25 982	8 311
Other earnings	18	18	45	185	689	1 573	2 602	3 986	6 368	9 565	2 504
Occupational pensions, annuities ..	141	370	615	885	894	742	750	702	704	1 365	717
Investment income	175	193	351	431	492	516	566	791	763	2 620	690
Other income	34	58	87	115	156	146	106	177	193	345	142
Total	596	990	2 334	5 284	8 380	11 384	14 277	17 672	22 862	39 877	12 364
Direct benefits in cash											
Contributory											
Retirement pension	1 447	1 657	1 607	1 073	730	496	316	307	229	276	814
Unemployment benefit	33	36	66	69	63	67	41	60	42	25	50
Invalidity pension and allowance ..	43	86	137	237	173	94	110	54	50	17	100
Statutory sick pay	1	1	5	20	28	35	45	41	43	41	26
Industrial injury disablement benefit	1	6	12	18	21	7	11	8	14	11	11
Sickness, industrial injury benefit ..	5	6	18	9	3	8	10	5	4	13	8
Widows' benefits	42	27	55	67	49	44	44	32	21	18	40
Statutory Maternity allowance/pay ..	3	1	2	10	11	11	13	14	16	5	9
Miscellaneous contributory benefits	8	11	9	7	5	3	2	2	2	2	5
Non-contributory											
Income support/ Supplementary benefit	272	466	531	350	195	123	129	67	64	54	225
Child benefit	31	95	173	207	257	331	324	322	286	305	233
Housing benefit	435	640	438	226	123	59	37	26	13	5	200
Invalid care allowance	3	2	2	4	16	6	4	11	2	4	5
Attendance allowance	2	8	36	59	52	23	21	25	23	15	26
Mobility allowance	7	21	35	55	32	22	29	18	24	10	25
War pensions	9	5	11	12	16	3	4	8	7	10	9
Severe disablement allowance	13	30	52	91	57	32	23	35	36	28	40
Student maintenance awards	30	10	27	28	20	45	20	17	43	47	29
Government training schemes	6	5	18	18	32	26	35	40	51	28	26
Family credit/ income supplement ..	2	12	19	52	31	9	7	3	0	3	14
Other non-contributory benefits	18	19	57	24	22	10	18	12	0	3	18
Total cash benefits	2 411	3 144	3 309	2 636	1 936	1 453	1 244	1 106	970	917	1 913
Gross income	3 007	4 134	5 642	7 920	10 317	12 837	15 521	18 778	23 831	40 794	14 277
Direct taxes and Employees' NIC											
Income tax	188	120	281	792	1 197	1 670	2 176	2 841	3 882	7 173	2 032
less: Tax relief at source ⁽¹⁾	15	15	41	80	159	236	302	395	446	581	227
Employees' NI contributions	13	21	82	253	456	669	851	1 020	1 306	1 433	610
Domestic rates (gross)	440	456	471	495	503	528	543	593	631	819	548
Total	626	581	793	1 460	1 997	2 632	3 267	4 060	5 373	8 845	2 963
Disposable income	2 381	3 552	4 850	6 460	8 319	10 205	12 254	14 718	18 458	31 950	11 313
Indirect taxes											
Taxes on final goods and services											
VAT	227	268	381	593	742	875	1 063	1 251	1 497	2 052	895
Duty on tobacco	83	118	183	215	224	250	258	266	268	224	209
Duty on beer and cider	19	23	42	67	79	106	121	129	161	146	89
Duty on wines	5	6	9	15	19	22	29	40	52	110	31
Duty on spirits	20	24	34	59	49	62	79	84	111	124	65
Duty on hydrocarbon oils	26	41	74	117	162	184	235	260	303	342	174
Car tax	5	2	7	24	34	31	52	61	72	72	36
Vehicle excise duty	16	23	45	62	79	91	109	119	141	146	83
Television licences	39	41	48	48	52	54	56	55	56	57	50
Stamp duty on house purchase	5	4	6	12	17	24	28	40	46	58	24
Customs' duties	12	14	19	28	35	41	47	52	62	76	39
Betting taxes	12	15	27	32	40	59	50	44	61	45	38
Other	7	8	11	11	13	15	18	19	19	28	15
Intermediate taxes											
Commercial and industrial rates	62	72	93	126	148	174	199	229	266	387	176
Employers' NI contributions	70	81	106	145	170	203	231	266	309	455	204
Duty on hydrocarbon oils	31	36	47	61	70	86	97	108	125	182	84
Vehicle excise duty	7	8	11	15	17	22	24	27	31	46	21
Other	30	34	45	61	72	83	95	108	125	179	83
Total indirect taxes	676	819	1 186	1 689	2 023	2 383	2 792	3 159	3 705	4 730	2 316
Post-tax income	1 706	2 733	3 664	4 771	6 297	7 822	9 462	11 559	14 753	27 220	8 997
Benefits in kind											
Education	184	221	525	618	780	1 037	1 001	1 118	1 043	1 023	755
National health service	906	1 049	1 094	946	914	911	884	887	871	939	940
Housing subsidy	88	120	111	79	57	45	27	31	16	14	59
Rail travel subsidy	7	5	8	13	17	32	27	35	39	68	25
Bus travel subsidy	28	36	41	27	21	20	20	18	17	22	25
School meals and welfare milk	7	27	50	37	22	27	26	18	19	16	25
Total	1 220	1 459	1 828	1 721	1 809	2 071	1 986	2 107	2 006	2 081	1 829
Final income	2 925	4 192	5 492	6 492	8 106	9 893	11 448	13 666	16 759	29 302	10 826

¹ On mortgage interest and life assurance premiums.

Cross-tabulation of households ranked by disposable income, unadjusted and equivalised, 1988

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	..	..	915	538	-	-	-	1 453
2nd	..	..	479	519	287	168	-	1 453
3rd	..	..	53	326	658	269	147	1 453
4th	..	..	6	68	452	620	307	1 453
Top	..	..	-	2	56	396	999	1 453
All households	..	..	1 453	1 453	1 453	1 453	1 453	7 265

(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	..	..	368	265	93	-	-	-	-	-	-	-	726
2nd	..	..	202	80	275	170	-	-	-	-	-	-	727
3rd	..	..	107	252	167	15	107	79	-	-	-	-	727
4th	..	..	38	82	91	246	69	32	128	40	-	-	726
5th	..	..	8	33	71	121	202	148	5	88	51	-	727
6th	..	..	3	9	24	110	163	145	175	1	82	14	726
7th	..	..	1	5	4	46	127	152	113	215	1	63	727
8th	..	..	-	-	2	16	47	126	170	122	203	40	726
9th	..	..	-	-	-	2	12	41	110	197	208	157	727
Top	..	..	-	-	-	-	-	3	26	63	182	452	726
All households	727	726	727	726	727	726	727	726	727	726	7 265

Summary of the effects of taxes and benefits, 1977-1988

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Distribution of households in the FES sample each year, 1977-1988	4

Summary of the effects of taxes and benefits, 1977-1988

TABLE 1 (Appendix 4)

	Quintile groups of households ranked by equivalised disposable income					All households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
1977						
Original income	762	2 186	3 966	5 344	7 955	4 043
plus cash benefits	1 033	801	527	347	223	586
Gross income	1 795	2 987	4 493	5 690	8 178	4 629
less direct taxes ⁽¹⁾ & employees' NIC	316	586	1 008	1 386	1 994	1 060
Disposable income	1 479	2 390	3 486	4 305	6 184	3 569
<i>Equivalised disposable income</i>	<i>1 457</i>	<i>2 052</i>	<i>2 664</i>	<i>3 458</i>	<i>5 451</i>	<i>3 016</i>
less indirect taxes	344	499	748	864	1 057	702
Post-tax income	1 135	1 892	2 737	3 441	5 127	2 866
plus benefits in kind	764	801	827	671	500	713
Final income	1 899	2 692	3 564	4 112	5 627	3 579
1979						
Original income	674	2 683	5 112	7 229	10 292	5 198
plus cash benefits	1 454	1 121	736	472	327	822
Gross income	2 128	3 804	5 848	7 701	10 619	6 020
less direct taxes ⁽¹⁾ & employees' NIC	257	622	1 178	1 688	2 408	1 231
Disposable income	1 871	3 182	4 669	6 013	8 211	4 789
<i>Equivalised disposable income</i>	<i>1 934</i>	<i>2 749</i>	<i>3 656</i>	<i>4 783</i>	<i>7 354</i>	<i>4 095</i>
less indirect taxes	397	673	1 033	1 292	1 560	991
Post-tax income	1 474	2 509	3 636	4 722	6 651	3 798
plus benefits in kind	947	1 067	1 041	850	574	896
Final income	2 422	3 576	4 677	5 572	7 225	4 694
1981						
Original income	1 141	3 354	6 613	9 587	14 868	7 113
plus cash benefits	2 013	1 651	1 045	744	442	1 179
Gross income	3 154	5 005	7 658	10 332	15 310	8 292
less direct taxes ⁽¹⁾ & employees' NIC	427	858	1 638	2 410	3 705	1 807
Disposable income	2 728	4 147	6 020	7 922	11 605	6 485
<i>Equivalised disposable income</i>	<i>2 586</i>	<i>3 621</i>	<i>4 764</i>	<i>6 287</i>	<i>10 424</i>	<i>5 537</i>
less indirect taxes	699	956	1 396	1 778	2 226	1 411
Post-tax income	2 029	3 191	4 624	6 144	9 378	5 074
plus benefits in kind	1 502	1 464	1 398	1 199	830	1 279
Final income	3 531	4 654	6 023	7 343	10 209	6 352
1983						
Original income	1 267	3 191	7 136	10 226	16 870	7 738
plus cash benefits	2 467	2 181	1 433	1 042	618	1 548
Gross income	3 734	5 372	8 569	11 267	17 488	9 286
less direct taxes ⁽¹⁾ & employees' NIC	498	867	1 850	2 654	4 411	2 056
Disposable income	3 236	4 505	6 719	8 613	13 077	7 230
<i>Equivalised disposable income</i>	<i>2 990</i>	<i>4 162</i>	<i>5 411</i>	<i>7 122</i>	<i>11 857</i>	<i>6 309</i>
less indirect taxes	875	1 054	1 591	1 988	2 518	1 605
Post-tax income	2 361	3 450	5 127	6 625	10 559	5 625
plus benefits in kind	1 648	1 541	1 543	1 250	1 090	1 415
Final income	4 009	4 991	6 671	7 875	11 649	7 039
1985						
Original income	1 156	3 323	8 317	12 382	20 050	9 045
plus cash benefits	2 925	2 514	1 638	1 038	675	1 758
Gross income	4 081	5 837	9 955	13 420	20 726	10 803
less direct taxes ⁽¹⁾ & employees' NIC	522	920	2 015	3 098	5 117	2 334
Disposable income	3 559	4 917	7 940	10 323	15 609	8 469
<i>Equivalised disposable income</i>	<i>3 413</i>	<i>4 726</i>	<i>6 337</i>	<i>8 573</i>	<i>14 126</i>	<i>7 435</i>
less indirect taxes	945	1 123	1 853	2 297	2 819	1 807
Post-tax income	2 615	3 794	6 087	8 025	12 790	6 662
plus benefits in kind	1 685	1 585	1 673	1 321	1 016	1 456
Final income	4 300	5 379	7 760	9 346	13 805	8 118

¹ After tax relief at source on mortgage interest and life assurance premiums and including gross domestic rates.

Summary of the effects of taxes and benefits, 1977-1988

TABLE 1 (Appendix 4) (continued)

	Quintile groups of households ranked by equivalised disposable income					All households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
1987						
Original income	1 223	3 851	9 473	14 506	25 469	10 904
plus cash benefits	3 173	2 776	1 870	1 072	668	1 912
Gross income	4 396	6 627	11 343	15 578	26 136	12 816
less direct taxes ¹⁾ & employees' NIC	582	1 061	2 241	3 431	6 396	2 742
Disposable income	3 815	5 566	9 102	12 146	19 740	10 074
<i>Equivalised disposable income</i>	3 725	5 372	7 446	10 228	18 539	9 062
less indirect taxes	1 038	1 303	2 122	2 592	3 183	2 048
Post-tax income	2 776	4 263	6 980	9 555	16 557	8 026
plus benefits in kind	2 045	1 815	1 890	1 520	1 101	1 674
Final income	4 821	6 078	8 871	11 075	17 658	9 700
1988						
Original income	1 211	4 440	10 746	16 255	29 166	12 364
plus cash benefits	3 215	2 798	1 756	1 080	715	1 913
Gross income	4 426	7 239	12 501	17 336	29 881	14 277
less direct taxes ¹⁾ & employees' NIC	667	1 220	2 448	3 792	6 689	2 963
Disposable income	3 759	6 019	10 053	13 544	23 192	11 313
<i>Equivalised disposable income</i>	3 836	5 741	8 228	11 423	21 323	10 110
less indirect taxes	1 081	1 475	2 408	2 902	3 714	2 316
Post-tax income	2 678	4 544	7 645	10 642	19 478	8 997
plus benefits in kind	2 124	2 024	2 056	1 722	1 219	1 829
Final income	4 802	6 568	9 701	12 363	20 697	10 826

¹ After tax relief at source on mortgage interest and life assurance premiums and including gross domestic rates.

Standard errors for the five income measures given in Table 1, 1977-1988

TABLE 2 (Appendix 4)

	Quintile groups of households ranked by equivalised disposable income					All households
	Bottom	2nd	3rd	4th	Top	
(£ per year)						
1977						
Original income	58	197	221	216	157	53
Gross income	48	157	195	207	157	48
Disposable income	32	114	147	155	121	36
<i>Equivalised disposable income</i>	15	18	24	30	94	27
Post-tax income	28	92	124	133	110	31
Final income	56	152	188	182	120	35
1979						
Original income	66	276	305	325	208	73
Gross income	60	228	284	320	207	67
Disposable income	48	177	221	247	158	50
<i>Equivalised disposable income</i>	20	33	38	49	102	36
Post-tax income	41	143	185	213	143	43
Final income	79	247	269	273	155	47
1981						
Original income	88	331	391	433	335	108
Gross income	78	272	347	413	334	100
Disposable income	63	207	259	305	284	78
<i>Equivalised disposable income</i>	26	34	48	64	251	64
Post-tax income	54	159	215	253	270	69
Final income	107	268	320	335	281	73
1983						
Original income	100	394	471	503	358	119
Gross income	93	323	402	466	355	108
Disposable income	80	244	296	343	269	79
<i>Equivalised disposable income</i>	35	35	57	71	216	63
Post-tax income	69	193	242	282	248	68
Final income	126	348	376	367	268	75
1985						
Original income	103	432	578	602	463	147
Gross income	96	347	506	580	460	134
Disposable income	79	259	383	432	345	99
<i>Equivalised disposable income</i>	36	45	73	94	237	74
Post-tax income	90	204	316	370	318	86
Final income	140	340	458	469	340	92
1987						
Original income	107	459	608	635	595	179
Gross income	100	370	526	609	596	167
Disposable income	88	285	401	456	445	124
<i>Equivalised disposable income</i>	37	58	82	119	382	105
Post-tax income	77	226	338	403	423	111
Final income	161	382	485	505	438	116
1988						
Original income	114	550	658	725	908	241
Gross income	107	489	570	706	906	231
Disposable income	90	315	432	538	780	188
<i>Equivalised disposable income</i>	44	71	100	136	685	162
Post-tax income	85	251	363	464	761	175
Final income	163	421	534	609	772	180

Number of households in the FES sample for each year, 1977-1988

TABLE 3 (Appendix 4)

	1977	1979	1981	1983	1985	1987	1988
i) Numbers in sample							
Household type							
Non-retired	5 623	5 196	5 764	5 264	5 220	5 459	5 381
Retired	1 575	1 581	1 761	1 709	1 792	1 937	1 884
1 adult retired	860	878	951	908	966	1 059	1 027
2 or more adults retired	715	703	810	801	826	878	857
1 adult non-retired	564	618	607	671	694	799	811
2 adults non-retired	1 615	1 424	1 584	1 380	1 444	1 490	1 520
3 or more adults non-retired	640	538	710	616	635	682	642
1 adult with children	190	196	228	250	230	284	282
2 adults with 1 child	680	623	649	622	604	592	568
2 adults 2 children	926	892	986	887	864	874	870
2 adults with 3 or more children	466	396	426	388	336	340	324
3 or more adults with children	542	509	574	450	413	398	364
All households.. .. .	7 198	6 777	7 525	6 973	7 012	7 396	7 265
ii) Percentages							
Household type							
Non-retired	78	77	77	75	74	74	74
Retired	22	23	23	25	26	26	26
1 adult retired	12	13	13	13	14	14	14
2 or more adults retired	10	10	11	11	12	12	12
1 adult non-retired	8	9	8	10	10	11	11
2 adults non-retired	22	21	21	20	21	20	21
3 or more adults non-retired	9	8	9	9	9	9	9
1 adult with children	3	3	3	4	3	4	4
2 adults with 1 child	9	9	9	9	9	8	8
2 adults 2 children	13	13	13	13	12	12	12
2 adults with 3 or more children	6	6	6	6	5	5	4
3 or more adults with children	8	8	8	6	6	5	5
All households	100	100	100	100	100	100	100

Distribution of households⁽¹⁾ in the FES sample each year, 1977-1988

By decile groups of households ranked by equivalised disposable income

TABLE 4 (Appendix 4)

	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
1977											
Decile groups of households ranked by equivalised disposable income											
Bottom	211	167	38	53	13	61	40	53	57	27	720
2nd	236	189	40	43	10	33	31	55	64	19	720
3rd	216	120	29	82	21	22	48	85	59	37	719
4th	81	79	44	116	42	23	66	133	70	66	720
5th	31	48	50	148	55	12	84	144	66	82	720
6th	24	30	45	149	89	13	90	130	44	106	720
7th	16	31	62	186	89	7	99	112	36	82	720
8th	19	18	71	224	106	9	93	101	22	56	719
9th	8	14	68	293	128	5	83	62	20	39	720
Top	18	19	117	323	87	5	46	51	26	28	720
All households	860	715	564	1 615	640	190	680	926	466	542	7 198
1979											
Decile groups of households ranked by equivalised disposable income											
Bottom	227	190	59	32	9	48	18	24	60	11	678
2nd	277	189	17	30	7	28	19	52	37	21	677
3rd	190	116	39	65	19	28	48	80	53	40	678
4th	73	72	47	112	34	19	70	111	72	68	678
5th	28	45	46	119	34	19	95	161	54	77	678
6th	34	34	74	108	61	12	86	141	41	86	677
7th	10	17	71	161	73	16	109	117	31	73	678
8th	13	18	69	204	107	10	70	96	23	68	678
9th	13	15	79	286	102	8	57	63	14	40	677
Top	13	7	117	307	92	8	51	47	11	25	678
All households	878	703	618	1 424	538	196	623	892	396	509	6 777
1981											
Decile groups of households ranked by equivalised disposable income											
Bottom	177	162	50	54	12	58	29	71	91	49	753
2nd	253	209	31	39	15	41	25	60	55	24	752
3rd	252	132	30	61	23	24	33	93	50	55	753
4th	113	85	43	96	54	34	67	129	67	64	752
5th	51	69	49	146	48	13	103	146	45	83	753
6th	29	42	57	151	84	18	92	161	37	81	752
7th	28	38	64	186	112	8	89	126	23	79	753
8th	22	24	69	214	156	13	72	81	24	76	751
9th	15	30	78	296	113	9	79	76	16	42	754
Top	11	19	136	341	93	10	60	43	18	21	752
All households	951	810	607	1 584	710	228	649	986	426	574	7 525
1983											
Decile groups of households ranked by equivalised disposable income											
Bottom	152	117	81	63	23	52	30	58	82	39	697
2nd	165	190	46	47	17	59	36	56	51	31	698
3rd	224	132	31	58	19	42	39	74	48	30	697
4th	159	92	49	80	39	30	46	101	51	50	697
5th	62	72	38	117	67	17	84	137	34	70	698
6th	47	50	60	133	69	16	83	134	38	67	697
7th	40	52	71	155	95	7	72	109	28	68	697
8th	22	40	78	194	106	11	90	82	22	52	697
9th	15	27	94	239	116	9	83	72	19	24	698
Top	22	29	123	294	65	7	59	64	15	19	697
All households	908	801	671	1 380	616	250	622	887	388	450	6 973

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

Distribution of households⁽¹⁾ in the FES sample each year, 1977-1988

By decile groups of households ranked by equivalised disposable income

TABLE 4 (Appendix 4) (continued)

	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	
1985											
Decile groups of households ranked by equivalised disposable income											
Bottom	152	134	86	74	16	42	37	71	76	33	701
2nd	166	211	60	51	17	59	39	45	28	25	701
3rd	278	120	37	57	25	38	37	62	30	18	702
4th	163	102	39	78	45	30	57	103	44	40	701
5th	66	61	62	110	72	17	74	119	48	72	701
6th	40	66	56	114	79	13	80	138	43	72	701
7th	30	36	74	185	104	18	80	92	26	56	701
8th	25	37	88	203	102	4	85	97	17	44	702
9th	28	34	94	253	101	5	62	80	13	31	701
Top	18	25	118	319	74	4	53	57	11	22	701
All households	966	826	694	1 444	635	230	604	864	336	413	7 012
1987											
Decile groups of households ranked by equivalised disposable income											
Bottom	195	122	59	69	25	58	43	70	60	39	740
2nd	211	188	51	50	23	79	26	44	39	28	739
3rd	286	118	64	55	19	50	29	49	36	34	740
4th	144	139	50	85	56	36	46	98	47	38	739
5th	71	93	69	122	63	25	69	126	47	55	740
6th	38	62	63	140	105	11	82	128	43	68	740
7th	42	54	86	159	106	10	90	123	19	50	739
8th	21	40	87	217	117	8	81	106	15	48	740
9th	20	34	113	276	101	5	65	74	25	26	739
Top	31	28	157	317	67	2	61	56	9	12	740
All households	1 059	878	799	1 490	682	284	592	874	340	398	7 396
1988											
Decile groups of households ranked by equivalised disposable income											
Bottom	204	135	80	62	17	69	38	59	42	21	727
2nd	192	206	71	45	14	79	28	36	34	21	726
3rd	305	119	48	57	30	39	26	58	26	19	727
4th	127	107	51	114	53	27	53	96	53	45	726
5th	53	95	50	122	79	21	68	151	42	46	727
6th	51	70	57	143	99	17	64	127	41	57	726
7th	34	39	93	162	88	16	95	113	26	61	727
8th	23	32	105	223	103	8	72	95	25	40	726
9th	17	31	116	270	100	4	71	69	15	34	727
Top	21	23	140	322	59	2	53	66	20	20	726
All households	1 027	857	811	1 520	642	282	568	870	324	364	7 265

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

