

THE EFFECTS OF TAXES AND BENEFITS ON HOUSEHOLD INCOME 1985

Summary of main results

During 1985 the Government raised and spent £158 billion. Directly or indirectly most of this revenue was raised from UK households and the expenditure benefits households; although greater equality of incomes is not necessarily a primary aim of this process, it is nevertheless one of its consequences. For any one household it is most unlikely that in any one year payments will exactly balance with benefits; the aim of this article is to examine how the balance varies by income level and by other household characteristics. This is the latest in a series of articles published in Economic Trends since the early 1960's (see Appendix 1 paragraph 38 for list of references). New material in this year's article gives a comparison of the effects of three different equivalence scales on the results.

The main results are:

(i) The effect of the tax-benefit system as a whole is to reduce the differences in income amongst households. In 1985 taxes and benefits increased the share of total income of the bottom 20 per cent of households from 0.3 per cent to 6.7 per cent. Cash benefits play the largest part in reducing income dispersion.

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

(iii) Between 1975 and 1985, the distribution of income before taxes and benefits became more unequal, though growth in cash benefits helped to offset this trend.

(iv) The 20 per cent of households with the lowest incomes now rely almost entirely on cash benefits. Increasing numbers

of households with children now appear in this group compared with 1975, and a decreasing number of retired households.

(v) When incomes are adjusted to remove variations in size and composition of households by using 'equivalence scales', this has the effect of smoothing differences in incomes. The application of 'equivalence scales' has a substantial impact on the distribution of incomes amongst households in reducing dispersion, but there is little difference in effect between the three different scales in common use.

Introduction

This article expands on the summary of results published in Economic Trends in November 1986. Its contents are as follows:

Part I Detailed description of results for 1985 for all households and for retired and non-retired households separately.

Part II Results for the period 1975-1985: changes in government revenue and expenditure and their impact on households.

Part III Adjusting income for household composition: the effect of adjusting incomes to a 'per equivalent adult' basis.

Appendix 1 Methodology and Definitions.

Appendix 2 Trends in government financing and expenditure 1975-1985: background tables for Part II.

The usual detailed tables appeared in the Appendix to the November 1986 article and are not reproduced here.

Chart 1 illustrates the stages of redistribution which form the

CHART 2

Allocated and unallocated items of government revenue and expenditure, 1985

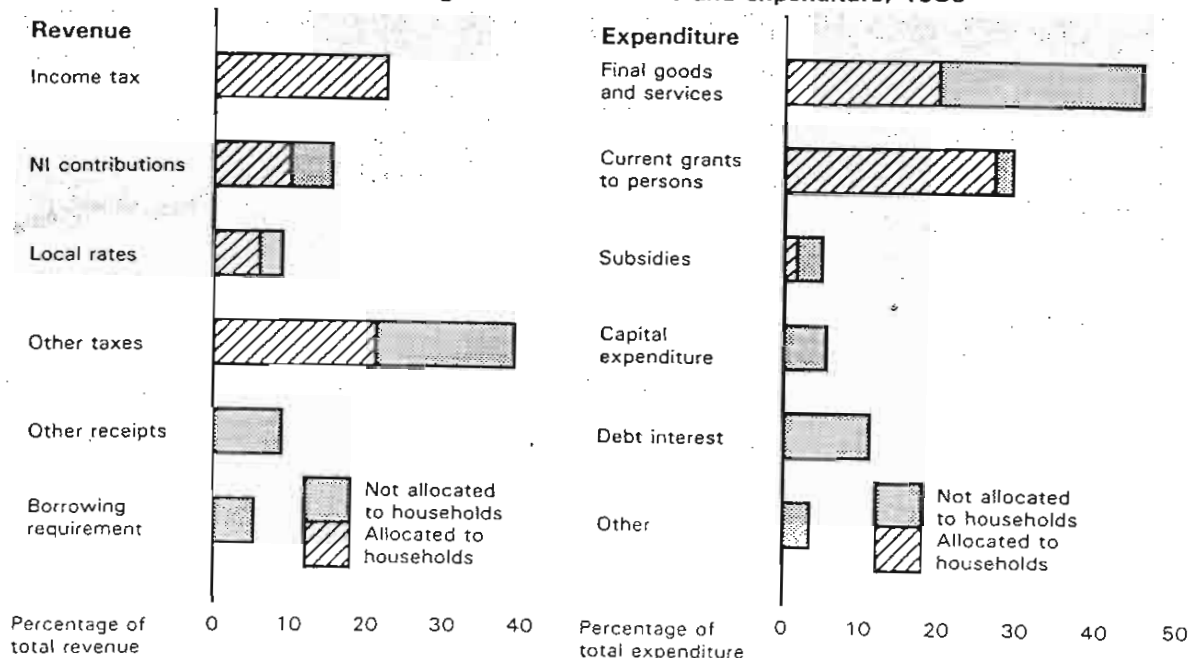
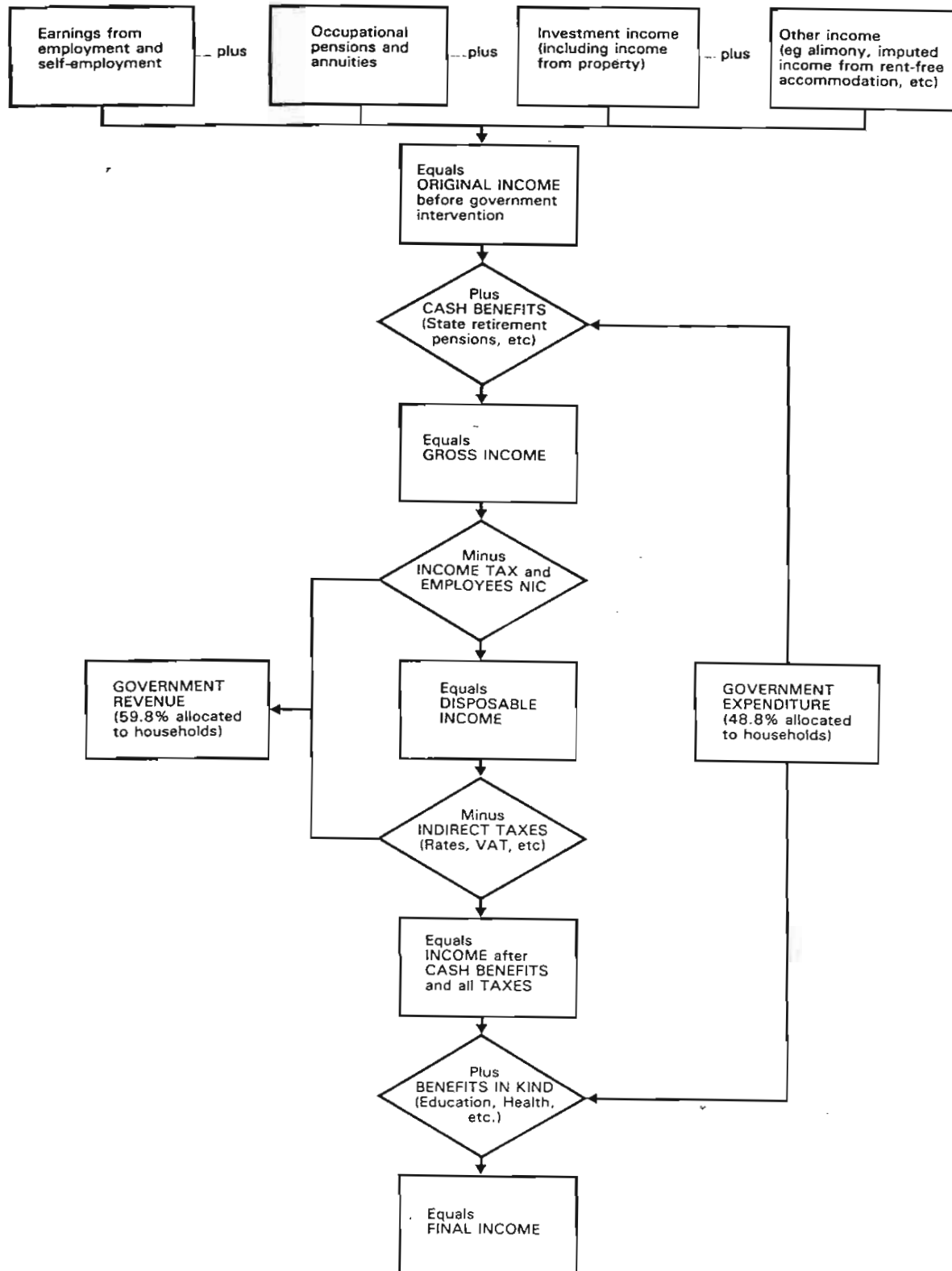


CHART 1
Stages of redistribution



Summary of the effects of taxes and benefits, 1985

TABLE A

	Quintile groups of households ranked by original income					Average over all households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Original income	120	2 720	7 780	12 390	22 330	9 070
<i>plus</i> cash benefits	3 260	2 570	1 200	790	670	1 700
Gross income	3 380	5 300	8 980	13 170	23 000	10 770
<i>less</i> income tax ¹ and employees' NIC	-10 ²	360	1 460	2 560	5 300	1 930
Disposable income	3 390	4 940	7 530	10 610	17 700	8 830
<i>less</i> indirect taxes	790	1 420	2 050	2 640	3 840	2 150
Income after cash ¹ benefits and all taxes	2 590	3 520	5 480	7 970	13 860	6 680
<i>plus</i> benefits in kind	1 370	1 400	1 440	1 490	1 590	1 460
Final income	3 960	4 920	6 920	9 460	15 450	8 140
<i>Percent that are public sector tenants</i>	62	34	26	15	7	29
Average per household (number)						
Children (i.e. aged under 16)	0.4	0.4	0.8	0.8	0.6	0.6
Adults	1.4	1.7	2.0	2.2	2.7	2.0
People in full-time education	0.3	0.3	0.6	0.7	0.7	0.5
Economically active people	0.1	0.6	1.3	1.8	2.2	1.2
Retired people	0.8	0.8	0.2	0.1	0.1	0.4

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

² Negative average tax payment results largely from imputed tax relief on life assurance premiums paid by those with nil or negligible tax liabilities.

structure of this analysis. Initially, households receive income from various non-governmental sources: from their employment (wages and salaries; self-employment income); from occupational pensions; from their investments; from other households (eg gifts and alimony payments) and from private non-profit-making institutions such as charities. 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.

It is not possible to allocate the whole of government revenue and expenditure to households (Chart 2). For some items, such as the Government Borrowing Requirement, such an allocation would be inappropriate; for others, the data required to do so are not available, for example expenditure on personal social services. In all, 60 per cent of government financing (including the Borrowing Requirement) and 49 per cent of expenditure are allocated to households in this analysis. Since the total amount of revenue allocated exceeds the total amount of benefits, less significance should be attached to the exact figures of cash 'gains' and 'losses' than to the broad patterns of redistribution, particularly in the middle income ranges.

The main source of data for this analysis is the Family Expenditure Survey (FES) 1985. 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 1985 7012 households participated in the UK and the response rate was 67.4 per cent. Studies have indicated that the FES suffers from some non-response bias, for example through under-representation of 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.

PART 1

RESULTS FOR ALL HOUSEHOLDS

The level of original income varies widely between households. The 20 per cent of households with lowest original income (the lowest 'quintile group') had an average original income of only £120 per annum in 1985, compared with an average original income of about £22 330 per annum in the highest quintile group (Table A). The size of the original income of a household depends to a large extent on how many economically active people it contains. Only one in eighteen households in the lowest quintile group contain one or more economically active people. Nearly two-thirds of the households in this group 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.

The composition of each quintile group of households ranked by original income, 1985

TABLE B

	Quintile group					Total
	Bottom	2nd	3rd	4th	Top	
Percentages						
Household type						
Retired	64	51	9	3	2	26
Non-retired						
1 adult	10	12	18	7	2	10
2 adults	6	13	23	31	30	20
1 adult with children	7	5	2	-	-	3
2 adults with children	11	11	36	36	25	24
3 or more adults ¹	2	7	14	22	41	17
Total	100	100	100	100	100	100

¹ With or without children.

Chart 3 illustrates the declining importance of cash benefits in gross income from the virtual dependence of the lowest quintile group to a minor income source for the top quintile group.

CHART 3
Sources of gross income, by quintile group of original income, 1985

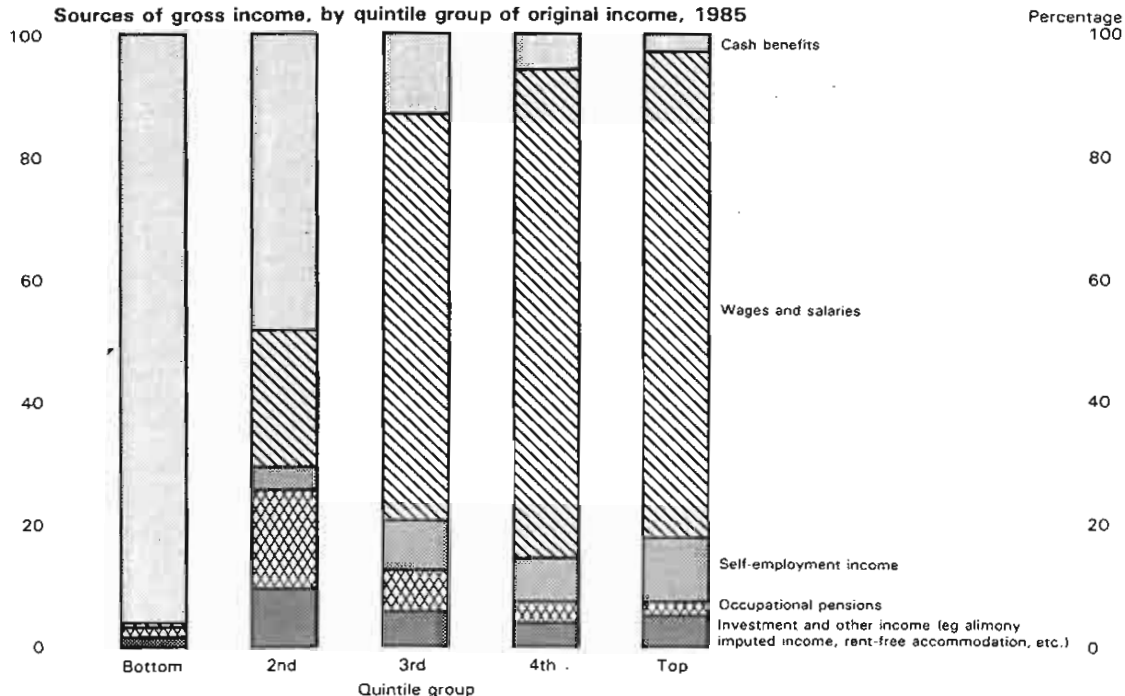
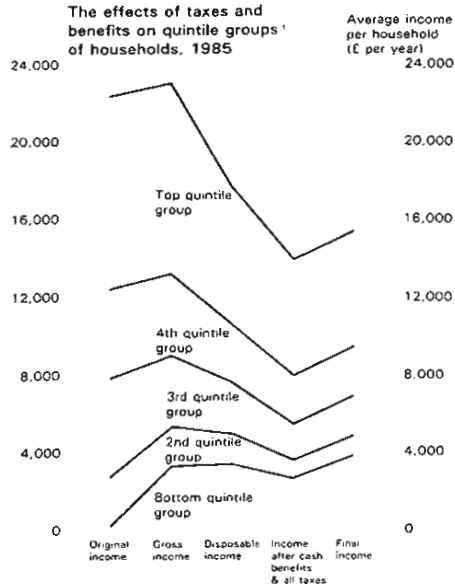


Chart 4 shows how the dispersion of incomes is reduced at each stage of the tax-benefit system, so that the average *final* income for each quintile group ranges from £3 960 to £15 450, a ratio of about 1:4 compared with the ratio for *original* incomes of about 1:190.

CHART 4
The effects of taxes and benefits on quintile groups¹ of households, 1985



¹ Households are ranked throughout by their original incomes

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 receive 49 per cent of all original income. After taking into account cash benefits, this group's share falls to 43 per cent. At the other end of the scale, the share of the lowest quintile group rises from 0.3 per cent to 5.4 per cent. Further, but comparatively smaller, compressions of the income distribution occur at the stages of disposable and final income.

Though not without its drawbacks, the Gini coefficient is the most widely used summary measure of the inequality of the distribution of income (see paragraph 37 of Appendix 1). It takes values between 0 and 100 per cent — the higher values indicating greater inequality. While it is dangerous to draw detailed conclusions from isolated changes in the Gini coefficient, the reduction from 50.5 per cent to 38.1 per cent shown in Table C shows that cash benefits produce the largest reduction in income inequality.

Percentage shares of total household income, 1985

TABLE C

Quintile group	Percentage in each quintile group of households re-ranked at each stage				
	Original income	Gross income	Disposable income	Post-tax ¹ income	Final income
Bottom	0.3	5.4	6.5	5.6	6.7
2nd	6	10	11	11	12
3rd	17	17	17	17	17
4th	27	25	24	24	24
Top	49	43	41	43	40
Total	100	100	100	100	100
Decile group					
Bottom	-	2.2	2.7	2.0	2.5
Top	30	26	25	26	24
Gini coefficient (percent)	50.5	38.1	34.6	37.6	33.8

¹ Income after cash benefits and all taxes but before benefits in kind.

Attention has already been drawn to the preponderance of retired households in the lower ranges of the distribution of original income; nearly two-thirds of the households in the lowest quintile group and over half of those in the second quintile group 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 will be analysed separately.

Summary of the effects of taxes and benefits on non-retired households, 1985

TABLE D

	Quintile groups of non-retired households ranked by original income					Average over all households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Original income	1 510	6 900	10 420	14 390	24 350	11 510
<i>plus</i> cash benefits	3 110	1 220	780	690	610	1 280
Gross income	4 620	8 110	11 200	15 080	24 950	12 790
<i>less</i> income tax ¹ and employees' NIC	130	1 220	2 050	3 060	5 840	2 460
Disposable income	4 500	6 900	9 150	12 020	19 120	10 340
<i>less</i> indirect taxes	1 290	1 960	2 370	2 930	4 090	2 530
Income after cash benefits and all taxes	3 210	4 940	6 780	9 090	15 030	7 810
<i>plus</i> benefits in kind	1 800	1 460	1 560	1 460	1 620	1 580
Final income	5 010	6 400	8 330	10 550	16 650	9 390
<i>Percent that are public sector tenants</i>	52	30	20	13	5	24
Average per household (number)						
Children (i.e. under 16)	0.9	0.8	0.9	0.8	0.6	0.8
Adults	1.7	1.9	2.1	2.3	2.7	2.2
People in full-time education	0.7	0.6	0.8	0.7	0.7	0.7
Economically active people	0.6	1.3	1.7	2.0	2.3	1.6
Retired people	0.1	0.1	0.1	0.1	0.1	0.1

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

RESULTS FOR NON-RETIRED HOUSEHOLDS

Original income

The distribution of original income amongst non-retired households is less unequal than amongst all households, ranging from an average of £1 510 per annum in the lowest quintile group to £24 350 in the highest (Table D), a ratio of 1:16 compared to the ratio of 1:186 for the distribution over all households. The relationship between the original income of a household and the number of economically active people it contains is again very strong, and this point is discussed in more detail at the end of this section.

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. The major item, child benefit, is spread fairly evenly over the income distribution, though less benefit is received by the top quintile group where there tend to be fewer children per household (Table D). The other non-contributory benefits are mainly means-tested, in particular 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. Even the contributory benefits, for which contribution records rather than income are the criteria for payment, are highest for the bottom quintile group because payment generally results from curtailment of employment income for one reason or another. On average, cash benefits formed 10 per cent of the gross income of non-retired households; their payment resulted in a significant reduction in income inequality.

Although the Housing Benefit scheme, which came into operation between November 1982 and April 1983, combined the former systems of rent rebates/allowances and rate rebates, these two forms of housing assistance continue to be treated differently in the national accounts and thus in this article too. Rent rebates and allowances appear as cash benefits whereas rate rebates are treated as reductions in indirect taxation since domestic rates payments are conventionally treated as indirect taxation.

Average value of cash benefits for each quintile group of non-retired households ranked by original income, 1985

TABLE E

	Quintile group					Total
	Bottom	2nd	3rd	4th	Top	
£ per household						
Contributory						
Retirement pension	300	230	120	120	100	170
Sickness/ injury related	320	150	60	60	50	130
Unemployment benefit	160	110	60	40	30	80
Other	140	90	60	30	20	70
Total contributory	920	580	290	260	200	450
Non-contributory						
Supplementary benefit	1 100	160	60	40	60	280
Child benefit	350	300	340	300	270	310
Rent rebates/ allowances	450	50	10	-	-	100
Sickness/ disablement related	160	60	40	30	30	60
Other	140	70	40	50	40	70
Total non-contributory	2 190	640	490	420	400	830
Total cash benefits	3 110	1 220	780	690	600	1 280
Cash benefits as a percentage of gross income	67	15	7	5	2	10

Income tax and National Insurance contributions

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 calculated on the first £265 of weekly earnings (the ceiling in operation during most of 1985), 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 and employees' NIC as percentages of gross income for each quintile group of non-retired households ranked by original income, 1985

TABLE F

	Quintile group					
	Bottom	2nd	3rd	4th	Top	Total
Income tax ¹	1.2	9.4	12.1	14.0	18.2	13.8
Employees' NIC	1.5	5.6	6.2	6.3	5.2	5.4
Total	2.7	15.0	18.3	20.3	23.4	19.2

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

The personal tax allowances are large enough to prevent households in the lowest quintile group from paying much tax, and in fact their tax payments are exceeded by their National Insurance contributions. Due to the progressive nature of the income tax system, the proportion of gross income paid in income tax rises from 1.2 per cent for the lowest quintile group to 18.2 per cent for the highest.

Indirect taxes

In total, indirect taxes expressed as a proportion of disposable income fall as original income rises (Table G), ranging from 28.6 per cent in the lowest quintile group to 21.4 per cent in the highest, though the highest quintile pay most in indirect taxes in absolute terms. However, *individual taxes* have divergent effects.

Indirect taxes as a percentage of disposable income for each quintile group of non-retired households ranked by original income, 1985

TABLE G

	Quintile group					
	Bottom	2nd	3rd	4th	Top	Total
Domestic rates ¹	3.9	4.8	4.1	3.7	2.8	3.6
VAT	7.7	8.0	7.8	7.7	7.3	7.6
Duty on beer	1.2	1.3	1.1	1.1	0.9	1.1
Duty on wines and spirits	0.8	0.9	0.9	1.0	1.1	1.0
Duty on tobacco	5.3	3.3	2.5	1.8	1.2	2.2
Duty on hydrocarbon oils	1.2	1.6	1.7	1.7	1.5	1.6
Car tax and vehicle excise duty	0.8	1.1	1.1	1.1	1.0	1.0
Other taxes on final goods and services	2.1	1.9	1.6	1.4	1.1	1.5
Intermediate taxes	5.7	5.5	5.1	4.9	4.5	4.9
Total	28.6	28.3	25.9	24.4	21.4	24.5

¹ Net of rate rebates and the rates element of housing benefit supplement, but including water, etc. charges

Domestic rates, tobacco duty, beer duty and intermediate taxes (see box) all fall as a percentage of disposable income as income rises, even though domestic rates payments are reduced considerably by rebates particularly for the bottom quintile group. The fall in tobacco duty payments is particularly marked because the incidence of smoking is higher amongst people with low incomes. Car ownership increases with income and therefore so does the related expenditure as a proportion of total expenditure, in the form of car tax, vehicle excise duty and duty on hydrocarbon oils.

Although some indirect taxes are broadly progressive, 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 it is likely that higher income households save a larger 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 rather more progressive.

INTERMEDIATE TAXES

Some 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.

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 20.7 per cent of total general government expenditure in 1985. Other items for which imputations are made are welfare foods (mainly free school meals), the housing subsidy and travel subsidies, together accounting for a further 2.2 per cent of general government current expenditure.

Education benefit to individual households is imputed by reference to the number of pupils and students 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. The bottom quintile group contains the largest number of student households for whom the costs of education are greatest. The result is that the lowest quintile group is allocated the highest average imputed benefit (Table H). The impact of welfare foods, which benefit mainly children, is greatest in the lower income groups since children from these households are more likely to take school meals and to 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 by individuals of different age and sex. Using this information, an imputed benefit from the health service can be allocated to each individual in the FES sample. These benefits are then aggregated for members of the household to yield figures on a household basis, so that not only the sex-age composition but also the size of the household determines the distribution of health service benefits.

Average value of benefits in kind for each quintile group of non-retired households ranked by original income, 1985

TABLE H

	Quintile group					Total
	Bottom	2nd	3rd	4th	Top	
£ per household						
Education	880	620	750	700	780	750
National health service	650	680	670	640	670	660
Housing subsidy	120	70	50	30	20	60
Travel subsidies	50	50	70	70	130	70
Welfare foods	110	30	20	20	20	40
Total	1 800	1 460	1 560	1 460	1 620	1 580
Benefits in kind as a percentage of post-tax ¹ income	56	30	23	16	11	20

¹ Income after cash benefits and all taxes.

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 shows that these benefits show little variation with income, on the assumption that the use made of the national health service depends on age and sex regardless of the level of 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 this article, tax relief on mortgage interest is treated as an adjustment to income tax, not as part of the housing subsidy analysed in Table H.

Travel subsidies cover the passenger element of the grants made to various public transport 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. However the heavy use of railways by households in the top quintile group, particularly commuters, means that their imputed benefit is nearly twice the average for all households.

Table H shows that taken together the absolute values of these benefits in kind show no clear relationship with household income, given the assumptions made in making the imputations. However as a proportion of post-tax income, benefits decrease from 56 per cent in the lowest quintile group to 11 per cent in the highest quintile group, indicating that this expenditure contributes to the reduction in income inequality.

Percentage shares of total household income for non-retired households, 1985

TABLE J

Quintile group	Percentage in each quintile group of non-retired households re-ranked at each stage				
	Original income	Gross income	Disposable income	Post-tax ¹ income	Final income
Bottom	2.6	6.7	7.7	6.4	7.3
2nd	12	13	13	13	14
3rd	18	18	18	18	18
4th	25	24	23	24	23
Top	42	39	38	40	38
Total	100	100	100	100	100
Decile group					
Bottom	0.1	2.5	3.0	2.0	2.5
Top	26	24	23	24	23
Gini coefficient (percent)	39.3	32.3	29.8	33.4	30.2

¹ Income after cash benefits and all taxes but before benefits in kind.

The overall effect of the various stages of the tax-benefit system on non-retired households is summarised in Table J. Households in the highest quintile group receive 42 per cent of all original income, compared with 3 per cent received by the lowest quintile group. However after taxes and benefits are taken into account, the share of the lowest quintile group rises to 7 per cent and that of the highest falls to 38 per cent. Cash benefits are the major factor underlying these changes, causing the Gini coefficient to

fall from 39.3 per cent based on original income to 32.3 per cent based on gross income. Income tax and employees' National Insurance contributions produce a further reduction in inequality, but payment of indirect taxes increases inequality. Benefits in kind reduce income dispersion.

As has already been 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.

Average incomes, taxes and benefits by the number of economically active persons per non-retired household, 1985

TABLE K

	Number of economically active persons per household			
	None	One	Two	Three or more
<i>Number of households in the sample</i>	538	1 978	1 991	695
Average per household (£ per year)				
Original income	1 190	9 240	13 990	18 890
<i>plus cash benefits</i>	3 330	1 300	790	1 020
Gross income	4 520	10 540	14 780	19 920
<i>less income tax and employees' NIC</i>	170	2 040	2 940	4 010
Disposable income	4 350	8 500	11 840	15 900
<i>less indirect taxes</i>	1 240	2 120	2 780	3 960
Income after cash benefits and all taxes	3 110	6 380	9 060	11 940
<i>plus benefits in kind</i>	1 940	1 420	1 530	1 910
Final income	5 050	7 790	10 590	13 850
Gini coefficients (per cent)				
<i>Original income</i>	87.2	37.1	26.5	25.0
<i>Gross income</i>	29.4	30.1	23.7	22.9
<i>Final income</i>	37.0	29.9	23.2	22.8

Original income ranges from an average of £1 190 per annum in households where there are no economically active people to an average of £18 890 in households where there are three or more. Cash benefits are concentrated in households where no-one is economically active, but remain substantial, 14 per cent of original 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* these four household groups but they also differ considerably 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.

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 to non-retired households (Table L). Few retired households

have substantial original income; those who do are concentrated in the top quintile group and are receiving occupational pensions. The majority of retired households are dependent on cash benefits, in the form of state retirement pensions and, particularly in the bottom quintile group, income-related benefits such as rent rebates and allowances and Supplementary Pension.

Thus 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 1 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; their payments of domestic rates are reduced by rebates particularly in the lower half of the income distribution.

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 allocation method used, but housing subsidy is substantially higher for low income households since they are more likely to be 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.

Effects of taxes and benefits on retired households, 1985

TABLE L

	Quintile groups of retired households ranked by original income					Average over all households
	Bottom	2nd	3rd	4th	Top	
Average per household (£ per year)						
Original income	-	130	640	1 820	7 600	2 040
<i>plus cash benefits</i>						
Contributory						
Retirement pensions	2 000	2 150	2 170	2 380	2 280	2 200
Sickness/ injury related	120	90	120	120	180	130
Unemployment benefit	-	-	10	20	30	10
Other	60	50	70	60	40	60
Non-contributory						
Supplementary benefit	260	130	70	50	20	110
Child benefit	20	-	-	-	10	10
Rent rebates/ allowances	590	380	220	70	10	250
Sickness/ disablement related	120	90	100	100	110	100
Other	30	40	30	30	30	30
Gross income	3 200	3 060	3 430	4 670	10 300	4 930
<i>less income tax¹</i>	-10	-	40	250	1 810	420
<i>less employees' NIC</i>	-	-	-	-	30	10
Disposable income	3 210	3 060	3 390	4 410	8 460	4 510
<i>less indirect taxes</i>						
Domestic rates	100	130	210	310	470	250
VAT	150	150	210	300	520	260
Tobacco duty	100	70	80	90	90	90
Other taxes on final goods and services	120	130	190	260	460	230
Intermediate taxes	140	150	190	250	380	220
Income after cash benefits and all taxes	2 590	2 430	2 520	3 200	6 540	3 460
<i>plus benefits in kind</i>						
Education	40	10	10	30	40	20
National health service	890	960	900	940	960	930
Housing subsidy	150	100	90	70	30	90
Travel subsidies	60	50	60	60	60	60
Final income	3 720	3 550	3 570	4 290	7 630	4 550

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

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 and receipts of benefits in kind produce only a marginal reduction in dispersion and so the distribution of final income is virtually unchanged from the distribution of disposable income.

Percentage shares of total household income for retired households, 1985

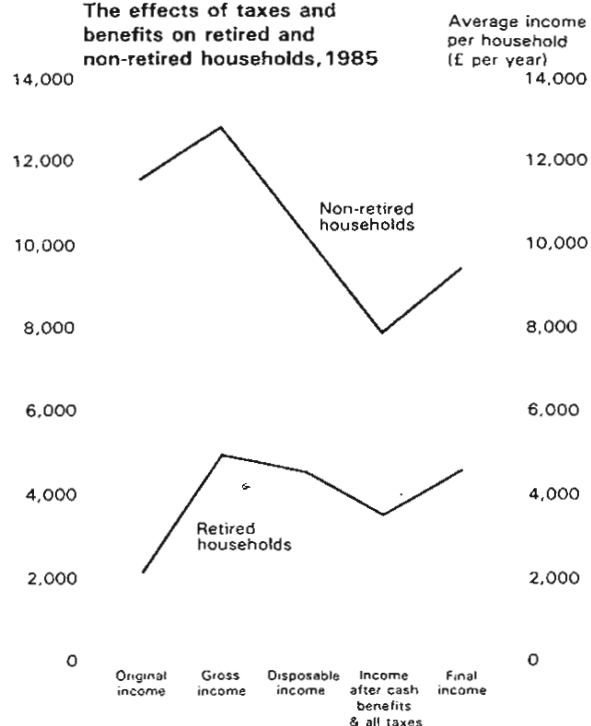
TABLE M

Quintile group	Percentage in each quintile group of retired households re-ranked at each stage				
	Original income	Gross income	Disposable income	Post-tax ¹ income	Final income
Bottom	-	9.6	10.4	9.0	10.1
2nd	1	12	13	13	14
3rd	6	15	16	16	17
4th	18	20	21	21	22
Top	75	43	39	40	37
Total	100	100	100	100	100
Decile group					
Bottom	-	4.4	4.7	3.5	4.2
Top	53	28	25	26	23
Gini coefficient (percent)					
	72.1	32.4	28.2	30.7	26.3

¹ Income after cash benefits and all taxes but before benefits in kind.

CHART 5

The effects of taxes and benefits on retired and non-retired households, 1985



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 final income is more equal amongst the retired than amongst the non-retired. The dispersion of original incomes amongst retired households is similar to that amongst non-retired but economically inactive households (Table K). However, the distribution of final income amongst this latter group remains more unequal than amongst the retired. Chart 5 illustrates the different impact which the tax-benefit system has on retired and non-retired households.

PART II

RESULTS FOR THE PERIOD 1975 TO 1985

This part of the article examines the changes which have taken place between 1975 and 1985 in the impact of taxes and benefits on household incomes. The main conclusion is that although the distribution of original income became more unequal over this period taxes and benefits largely offset this trend. Cash benefits have had the most important role to play in reducing income dispersion and have increased in importance over the period. The shift in personal taxation from income to expenditure has also had an impact.

Taxes and benefits as percentages of income by quintile groups of households, 1975-85

TABLE N

Households ranked by original income

	1975	1977	1979	1981	1983	1985
Cash benefits as percentages of gross income						
Bottom quintile group	87	91	92	92	96	96
2nd	24	29	33	37	46	49
3rd	6	8	9	11	14	13
4th	3	4	5	6	7	6
Top	2	2	3	3	3	3
Average over all households	11	13	13	14	16	16
Income tax and NI contributions as percentages of gross income						
Bottom quintile group	1	1	-	-	-	-
2nd	14	13	10	11	9	7
3rd	20	19	18	18	18	16
4th	22	22	19	21	21	19
Top	26	25	21	23	23	23
Average over all households	21	20	18	19	19	18
Indirect taxes as percentages of disposable income						
Bottom quintile group	21	22	23	26	25	23
2nd	24	25	25	28	29	29
3rd	23	24	25	27	28	27
4th	22	23	24	25	25	25
Top	20	21	21	22	23	22
Average over all households	22	23	23	25	25	24
Benefits in kind as percentages of final income						
Bottom quintile group	34	34	35	38	37	35
2nd	27	27	27	29	28	28
3rd	24	22	23	24	24	21
4th	19	18	17	18	18	16
Top	14	14	12	12	12	10
Average over all households	21	20	19	20	20	18

Any discussion of trends in the effects of taxes and benefits on household income has as its background the changes which may have taken place in the various components of the tax-benefit system at the aggregate level. Appendix 2 gives some information on the changes in the level and composition of government expenditure and financing between 1975 and 1985, and in particular how the items allocated to households in this article have been affected.

This shows that government transfer payments have quadrupled in current price terms since 1975, and cash benefits accounted for 53 per cent of the total in 1985 compared with 38 per cent in 1975. Much of this growth can be attributed to increases in the number of recipients of social security benefits, such as retired people and those out of work. The pattern of government final consumption (ie government expenditure in providing services) has remained much more stable. Of the items allocated to households, health expenditure has increased from 21 per cent to 23 per cent of total expenditure whilst education expenditure has fallen from 21 per cent to 19 per cent, reflecting the increase in the number of elderly and the decrease in the number of children (see, for example, Social Trends 17, Charts 1.4 and 1.5).

As a result of policy changes over the period, there have been major shifts in the pattern of government financing. Income tax fell from 28 per cent of government revenue in 1975 to 23 per cent in 1985 whilst indirect taxes have risen from 24 per cent to 30 per cent, in line with government policy to shift the balance of personal taxation from income to expenditure.

The results of the changing pattern of government income and expenditure are illustrated in Table N. The composition of the lowest quintile group has changed considerably over the period (see separate section below), and now contains less retired households and more families with children. They have different sources of income, different needs for cash benefits, different

consumption patterns, and make different demands on services. Thus at least part of the change in income shares is because the mix of households within each quintile group has changed. In the following analysis it should be recalled that these comparisons over time only indicate changes in positions relative to other groups. Unless total income remains constant, changes in income shares cannot indicate whether a section within the income distribution has had an absolute change in its income.

Averaged over all households, cash benefits have risen from 11 per cent of gross income in 1975 to 16 per cent in 1985. Throughout the period, cash benefits have been virtually the sole source of gross income for households in the lowest quintile group, but their importance to the second quintile group has increased considerably from 24 per cent of gross income in 1975 to 49 per cent in 1985. This is largely because in 1985 a much higher proportion of the second quintile group were retired households compared with 1975 (51 per cent in 1985 compared with 21 per cent in 1975). The introduction of child benefit, phased in between 1977 and 1979 to replace family allowances and child tax allowances, caused part of the increase in importance of cash benefits throughout the income distribution, and in the latter part of the period income support during periods of unemployment has of course increased the importance of cash benefits to many households particularly in the lower part of the income distribution.

The shift of taxation from income to expenditure is clearly illustrated in Table N, although in fact because households with very high incomes tend to be under-represented in the FES the fall in income tax burdens in 1979 is likely to be somewhat understated. Notwithstanding, income tax and National Insurance contributions fell from 21 per cent of gross income in 1975 to 18 per cent in 1985 averaged over all households. The fall was particularly marked for the second quintile group, where payments dropped from 14 per cent to 7 per cent of gross income (payments by the bottom quintile group were negligible throughout the period). This is the result both of the cut in the basic rate of tax in 1979 and real increases in personal allowances, and of the increasing importance of non-taxable income to this group.

Indirect taxes rose as a percentage of disposable income averaged over all households and in each quintile group (Table N). The main shift occurred between 1979 and 1981 after the increase in the rate of VAT in 1979 and affected the lower half of the income distribution rather more than the upper half. Since 1981 payments have remained fairly stable relative to disposable income, though they appear to have fallen somewhat for the lowest quintile group. Benefits in kind have decreased as a proportion of final income over the period, with the top quintile group showing the largest fall.

Table P shows the effect of these changes on shares of income at various stages of the tax-benefit system, and in Table Q their effect is summarised by Gini coefficients.

Gini coefficients for the distribution of income at each stage of the tax-benefit system, 1975-85

TABLE Q

	1975	1977	1979	1981	1983	1985
Gini coefficients (per cent)						
Original income	43	44	45	47	49	51
Gross income	35	34	35	36	36	38
Disposable income	32	31	33	33	33	35
Income after cash benefits and all taxes	33	33	35	36	36	38
Final income	31	31	32	32	33	34

The increase in dispersion of original incomes is caused by the rising levels of unemployment over the period, (see, for example, Social Trends 17, Table 4.21) and also increases in the numbers of retired people, most of whom tend to have little original income. After the effects of the tax-benefit system have been taken into account the increase in dispersion is much less marked, though the Gini coefficient based on final income still shows a small increase between 1975 and 1985.

Percentage distribution of original, disposable, post-tax, and final income, households re-ranked at each stage, 1975-85

TABLE P

	1975	1977	1979	1981	1983	1985
Original income						
Quintile group						
Bottom	0.8	0.6	0.5	0.6	0.3	0.3
2nd	10	10	9	8	7	6
3rd	19	19	19	18	18	17
4th	26	27	27	27	27	27
Top	44	44	45	46	48	49
All households	100	100	100	100	100	100
Disposable income						
Quintile group						
Bottom	6.6	6.9	6.5	6.7	6.8	6.5
2nd	13	13	12	12	12	11
3rd	18	18	18	18	18	17
4th	24	24	25	24	24	24
Top	38	38	39	39	40	41
All households	100	100	100	100	100	100
Income after cash benefits and all taxes						
Quintile group						
Bottom	6.2	6.4	6.1	6.0	6.0	5.6
2nd	12	12	11	11	11	11
3rd	18	18	18	17	17	17
4th	24	24	25	24	24	24
Top	39	39	40	41	42	43
All households	100	100	100	100	100	100
Final income						
Quintile group						
Bottom	7.1	7.3	7.1	7.2	6.9	6.7
2nd	13	13	12	12	12	12
3rd	18	18	18	18	18	17
4th	24	24	24	24	24	24
Top	38	38	38	39	39	40
All households	100	100	100	100	100	100

Looking at the various components of the tax-benefit system, it is clear that cash benefits have played the most important role in reducing income dispersion and that their importance has grown as original incomes at the lower end of the distribution have fallen — hence the growth in expenditure by government on transfer payments over the period. Payments of income tax and national insurance contributions have resulted in the reduction of about 3 percentage points in the Gini coefficient throughout the period. However the payment of indirect taxes caused an increase in the dispersion of incomes in each of the years examined and, as government financing shifted in favour of taxes on expenditure, the difference between Gini coefficients before and after indirect tax payments widened. This effect was largely redressed by the addition of benefits in kind.

The composition of the lowest quintile group of households ranked by original income, 1975-85

TABLE R

	1975	1977	1979	1981	1983	1985
Percentages						
Household type						
Retired	81	80	83	78	65	64
Non-retired						
1 adult	7	5	6	6	9	10
2 adults	4	4	3	3	5	6
1 adult with children	5	5	5	6	8	7
2 adults with children	2	4	4	6	9	11
3 or more adults ¹	1	1	-	2	3	2
All households in the bottom quintile group	100	100	100	100	100	100

¹ With or without children.

Low income households

With significant shifts in the pattern of government expenditure and financing having taken place between 1975 and 1985, it is of interest to examine what their impact has been not only on the overall distribution of income amongst households but in particular on those households with low incomes. Thus this short section discusses the changes which have taken place affecting the 20 per cent of households with the lowest original incomes, the lowest quintile group.

The composition of this group has changed substantially between 1975 and 1985 (Table R). The most noticeable change has been the reduction in the proportion of retired households from 81 per cent to 64 per cent of the group, balanced by increases in the proportions of each of the non-retired household types. The major factor underlying this shift has of course been unemployment which has meant reductions in original income for increasing numbers of non-retired households who now appear in the lowest quintile group, and more retired households have been shifted upwards to the second quintile. The increased likelihood of a retired person receiving an occupational pension — which forms part of original income — may also have contributed to the change. The household type to show the largest increase in representation in the lowest income group is two-adult households with children, which formed 11 per cent of the group in 1985 compared with 2 per cent in 1975.

Households in the lowest quintile group rely almost entirely on cash benefits and this dependence has increased over the period from 87 per cent of gross income to 96 per cent (Table N). The vast majority are not liable for either income tax or National Insurance contributions, so changes in their rates or structure have no impact on these households. However the shift of taxation from income to expenditure had a greater than average effect on them, with indirect tax payments rising from 21 per cent of their

disposable income in 1975 to 26 per cent in 1981, though the proportion has since fallen back to 23 per cent.

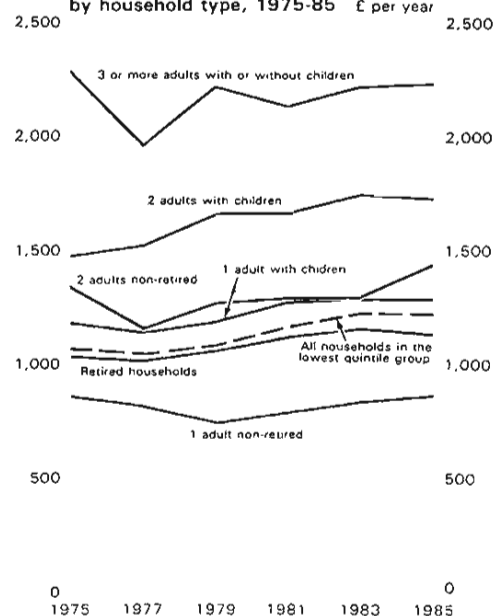
To examine how the resources of households in the lowest quintile group have changed between 1975 and 1985, Chart 6 shows average disposable income for various household types within the group, adjusted to constant 1975 prices using the Retail Prices Index. It should be recalled that in fact for this group of households, disposable income virtually equates with receipts of cash benefits.

Taking the group as a whole, there has been a real increase of about 15 per cent in average disposable income. However, the various household types have fared rather differently. Retired households saw their incomes increase by about 10 per cent in

real terms, though it should be recalled that they now form a smaller proportion of the lowest quintile group than they did in 1975. Households comprising two adults with children, though now more numerous in the lowest quintile group, registered an increase of about 17 per cent in average real disposable income, reflecting both the introduction of child benefit between 1977 and 1979 and the change in Supplementary Benefit scale rates for children in 1980. However it must be remembered that, except for the retired group, these estimates are based on small numbers of households — hence the apparent volatility of incomes of three-adult households — and so can be interpreted only as indications of the broad direction of trends.

CHART 6

Average disposable income (in 1975 prices) in the lowest quintile group¹ by household type, 1975-85 £ per year



1. Quintile groups of households ranked by original income

PART III

ADJUSTING INCOME FOR HOUSEHOLD COMPOSITION

Retired and non-retired households are analysed separately in Part I of this article because of their very different income patterns, but the analysis does not take into account the fact that these households may have varying needs, for example, because of differing household size. In this section of the article we examine the effect of adjusting household income according to the household's size and composition as an indication of their differing needs. The aim is to convert household incomes to a common basis so that like can be compared with like. The methodology commonly adopted to do this is to calculate ratios of incomes required by different household types to achieve a similar standard of living, taking into account the economies possible in the larger households from sharing of facilities such as heating and lighting. Such ratios are known as equivalence scales.

Although the validity of the principle of applying equivalence scales to household income data has been accepted for many years, the method of deriving the equivalence scales themselves is an area of controversy. In the UK, two main approaches have been used: to derive the ratios from data on household expenditure recorded in the FES, or to use the ratios implicit in official schemes of social security or taxation, in particular the supplementary benefit scales. Both have advantages and disadvantages. For example, although scales derived from expenditure data have the virtue of reflecting households' behaviour, assumptions have to be made in order to estimate variables such as expenditure on children.

In this section we examine the effect of applying three different sets of equivalence scales to the various measures of income discussed in this article. The three scales are as follows:

McClements These scales 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 at DHSS, though it is recognised that they are based on what is now rather old expenditure data and that it might be desirable to recalculate them using more recent survey information.

Supplementary Benefit These scales have been derived from the ordinary scale rates of supplementary benefit. As with the expenditure-based scales, they make allowance for economies of scale and for children being less costly to feed and clothe than adults.

Royal Commission on the Distribution of Income and Wealth (RCDIW) These scales were used in the sixth report of the RCDIW which sat between 1974 and 1979. They are also based on ordinary supplementary benefit scale rates but are a simplified version, making no allowance for the varying needs of children of different ages or for economies of scale in households containing a number of single adults.

Values for each of these scales are presented in Table S. A married couple without children is taken as the standard of comparison with an equivalence scale of unity. The purpose of the following analysis is to examine the effect of the application of these equivalence scales to our results, and in particular to analyse the

sensitivity of the results according to the equivalence scale chosen, rather than to draw any conclusions about the most appropriate scales for use with these data. The main conclusions are that the application of equivalence scales has a substantial impact on the composition of each quintile group and on the distribution of income between households, but there is little difference in effect between the three scales examined.

Equivalence scales used in the analysis

TABLES

	DHSS ¹	SB ²	RCDIW ³
Married couple	1.00	1.00	1.00
Single adult (householder)	0.55	0.62	1
2nd adult (non-householder)	0.45	1	1
3rd adult (non-householder)	0.45	0.49	0.61
4th adult (non-householder)	0.40	1	1
Child aged 16-17	0.38	0.38	1
13-15	0.28	1	1
11-12	0.26	0.32	1
8-10	0.23	1	0.27
5-7	0.21	1	1
2-4	0.18	0.21	1
0-1	0.07	1	1

¹ Scale net of housing costs in use by DHSS (EAO), developed by McClements.

² Scale constructed from ordinary scale rates of Supplementary Benefit.

³ As used by the Royal Commission on the Distribution of Income and Wealth in their sixth Report.

Before presenting the results, a word of caution is needed on the applicability of the scales in Table S to the concepts of income used in this article. Although supplementary benefit scale rates do embody a scale of relativities, they do not cover housing costs and so the relativities do not take into account such costs either (though eligibility for supplementary benefit can provide a passport to eligibility for certificated housing benefit). Thus strictly speaking these scales should only be applied to income net of housing costs, a concept not usually used in these articles, though in practice they have often been applied to incomes gross of housing costs — for example by the RCDIW. The scales constructed by McClements are available based on expenditure both net and gross of housing costs; for comparability with the supplementary benefit scales, those net of housing costs are used in this analysis. Again, strictly speaking, it could be argued that all three scales are applicable only to disposable income since they are based on the concept of spending power. However, in practice they are often applied to other measures of income such as original income, and so although most of the analysis in this section is in terms of disposable income, the effect of using equivalence scales on other concepts of income is also discussed.

Equivalent income is obtained by dividing the actual income of each household by the equivalence scale implied in the three sets of ratios given in Table S. Thus the income of households consisting of a married couple without children is unchanged but, for example, the income of a single parent with one child aged seven would be divided by 0.76 using the DHSS scale, or 0.83 using the SB scale, or 0.88 using the RCDIW scale.

Table T shows the results of applying the three equivalence scales to disposable income, in terms of the composition of the top and bottom quintile groups. The effect of applying all three scales is very similar: the proportion of retired households in the bottom quintile group is considerably reduced as is the proportion of single person non-retired households, whereas the proportion of two-adult households with children rises. Conversely, the proportion of large households (three or more adults) in the top quintile group falls by two-thirds on an equivalent income basis whilst the proportions of one and two-adult households without children increase substantially. These movements are much as one would expect: small households naturally appear more frequently at the top of the distribution on the adjusted basis whereas larger households are shifted down the distribution.

Composition of the top and bottom quintile group of households ranked by disposable income, unadjusted and adjusted, 1985

TABLE T

	Adjusted to a per equivalent adult basis			
	Unadjusted	DHSS	SB	RCDIW
Bottom quintile group				
Retired	69	44	44	39
1 adult non-retired	17	7	9	8
2 adults non-retired	5	9	8	8
1 adult with children	6	7	8	8
2 adults with children	2	22	22	24
3 or more adults ¹	1	10	9	12
All household types	100	100	100	100
Top quintile group				
Retired	3	8	8	8
1 adult non-retired	2	20	17	19
2 adults non-retired	26	40	44	45
1 adult with children	-	1	1	-
2 adults with children	25	16	15	15
3 or more adults ¹	45	16	16	13
All household types	100	100	100	100

¹ With or without children.

The percentage shares of disposable income of each quintile group are also modified by the equivalence scale adjustments, particularly at the top and bottom of the distribution (Table U). The share of disposable income of the bottom quintile group is increased by about 3 percentage points whilst the share of the top quintile group is reduced by about the same extent. This results in a reduction in the Gini coefficient, indicating that income dispersion is reduced when equivalence scale adjustments are made. These results are very similar whichever of the three equivalence scales is used.

The Gini coefficient provides a convenient means of examining the impact of the tax-benefit system on household equivalent income, compared with its impact on unadjusted incomes. In Table V, each measure of income has been adjusted to a per equivalent adult basis using the same three equivalence scales. The distribution of original income between households is very similar on both an adjusted and an unadjusted basis. However, each element of the tax-benefit system reduces the dispersion of *equivalent* incomes rather more than it reduces the dispersion of *unadjusted* incomes, resulting in Gini coefficients for final income some 8 percentage points lower than the coefficient for the unadjusted distribution. Once again, very similar effects are shown by all three scales. The

Percentage shares of total household disposable income, unadjusted and adjusted, 1985

TABLE U

Quintile group	Percentage in each quintile group of households ranked by disposable income			
	Adjusted to a per equivalent adult basis			
	Unadjusted	DHSS	SB	RCDIW
Bottom	6.5	9.4	9.3	9.3
2nd	11.3	13.1	12.8	12.9
3rd	17.3	17.1	17.0	16.8
4th	24.3	22.9	23.0	22.8
Top	40.6	37.6	37.8	38.2
All households	100.0	100.0	100.0	100.0
Gini coefficient (percent)	34.6	28.4	28.8	29.0

main reason for the reduced dispersion of adjusted distributions is that the major redistributive element of the tax-benefit system, cash benefits, tend to be concentrated in small households, in particular retired households, who are given greater weight in the adjusted distributions.

Gini coefficients for the distribution of income at each stage of the tax-benefit system, unadjusted and adjusted, 1985

TABLE V

	Adjusted to a per equivalent adult basis			
	Unadjusted	DHSS	SB	RCDIW
Gini coefficients (percent)				
Original income	51	49	49	50
Gross income	38	33	33	33
Disposable income	35	28	29	29
Final income	34	26	26	26

To conclude, it is clear that adjustment of household incomes to a per equivalent adult basis has a considerable impact on the income data considered in this article. Small households are no longer concentrated at the bottom of the income distribution nor are large households concentrated at the top, and the impact of the tax-benefit system is greater, resulting in a more equal distribution of income after taxes and benefits. Looked at in practical terms, it would appear from this exercise that the choice of equivalence scale from those in common use does not appear crucial, and this might pave the way for more extensive use of equivalence scale adjustments in these articles in the future. However, this is a difficult area of research in which work is continuing which may throw further light on how such adjustments to household incomes may bear upon the final distribution.

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 the 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, which most people would probably not think of as leading to a reduction in their personal incomes, and therefore no attempt is made in this analysis to apportion them to households. Similarly, there are other items of government expenditure, such as capital expenditure and expenditure on defence and on the maintenance of law and order, for which there is no clear conceptual basis for allocation, or for which we do not in any event have sufficient information to make an allocation.

Family Expenditure Survey

2. The estimates in this article are based mainly on data derived from the FES. The FES is a continuous survey of the expenditure of private households. People living in hotels, lodging houses, and in institutions such as old peoples' homes are excluded. Each adult keeps a full record of payments made during 14 consecutive days and answers questions about hire purchase and other payments. He also gives 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.

3. One of the main purposes of the FES is to yield information on household expenditure patterns to produce the weights used in compiling the index of retail prices. The survey is conducted by the Office of Population Censuses and Surveys on behalf of the Department of Employment who analyse and report on it. The Family Expenditure Survey Report for 1985, containing detailed data on household characteristics, income, and expenditure, was published in February 1987. Details of the survey method are set out in 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 1985 was 7012. The response rate in Great Britain was 67.9 per cent. The available evidence suggests 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.

Unit of analysis

5. The basic unit of analysis in the article is the household, and not the family or the individual. 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 housing, fuel and light and food, 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, adults have been taken as all people aged 16 and over. 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 in which the combined income of members who are at least 60, and who describe themselves as retired or unoccupied, amounts to at least half the total gross income of the household; or in which the head is over state pension age, and more than three quarters of the household's income consists of National Insurance retirement and similar state pensions, or related supplementary benefit.

8. By no means all retired people are in retired households; about one in three 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 and it is particularly important to bear this in mind for households comprising one adult with children — it is likely that many of these households changed their composition at some time 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 and employees' National Insurance contributions = Disposable income.

Stage three

Disposable income minus indirect taxes = Income after cash benefits and all taxes.

Stage four

Disposable income minus indirect taxes plus 'benefits in kind' = Income after all taxes and benefits (final income).

12. The starting point of the analysis is original income. This is the annual income in cash and kind 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 and occupational pensions. 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 an index of income from self-employment derived from the National Accounts. 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. Households living in rent-free dwellings are each assigned an imputed income based upon 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, unemployment benefit, sickness and industrial injury benefit, statutory sick pay, invalidity pension and allowance, industrial injury disablement benefits, widows' benefits, maternity allowance, Christmas bonus.

Non-contributory:

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

15. Statutory Sick Pay is classified as a cash benefit even though it is 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 rent rebates and allowances, is based on current rates.

17. Income tax 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 of the lack of data from the FES on their payment.

18. The estimates are based on the amount deducted from the last payments of employment income and pensions, and on the amount paid in the last 12 months in respect of income from self-employment, interest, dividends and rent. The income tax payments recorded will therefore take account of a household's tax allowances, with the exception of tax relief obtained 'at source'. In 1985 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.

19. Life assurance premium relief is calculated by allocating the amount paid by Central Government to life assurance funds in respect of this relief in proportion to each household's premium payments, where their policy was taken out before April 1984.

20. As original income includes some elements not actually received in cash, disposable income as defined here does not correspond exactly to money available for the household to spend. It does however give an indication of the resources which are available to the household, and which influence spending decisions.

21. The order in which the remaining allocated items are presented is to some extent arbitrary.

22. Indirect tax on final consumer goods and services include:

- Local authority rates on dwellings (after rebates)
- Duties on beer, wines, spirits, tobacco, oil, betting, etc
- Value Added Tax (VAT)
- Customs (import) duties
- Car tax
- Motor vehicle duties
- Driving licences
- Stamp duties
- Gas levy

23. These taxes are either levied directly on the consumer (for example domestic rates) or are assumed to be fully incident on the consumer. 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.

24. The figures for domestic rates include, as well as local authority rates, charges made by water authorities for water, environmental and sewerage services, although these charges to households in England and Wales are no longer counted as general government receipts in the National Accounts. (In Scotland these payments go to the local authorities and are so counted.) Local authority rates are shown net of all rebates received through the Housing Benefit scheme, including those received by Supplementary Benefit recipients. (The rent rebate element of Housing Benefit is shown as an income-related cash benefit.)

25. 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.

26. 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).

27. 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
 National Insurance surcharge
 Customs (import) duties
 Stamp duties
 VAT

28. 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 input-output techniques.

29. Finally, we add those 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, milk and other welfare foods
- National Health service
- Housing subsidy
- Rail travel subsidy
- Bus travel subsidy

30. Education benefit is estimated by the Department of Education and Science as the cost per pupil or student in special schools, primary, secondary and direct grant schools, universities, and other further education establishments. The value of the benefit attributed to a household depends on the number of people in the household recorded in the FES as receiving each kind of education (students away from home are excluded).

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

32. Each individual in the FES is allocated a benefit from the National Health Service according to the estimated average use made of the various types of health service by people of the same age and sex, and according to the total cost of providing those services. The benefit from maternity services is assigned separately to those households receiving maternity grant.

33. In this article public sector tenants are defined to include the tenants of local authorities, New Town Corporations, the Scottish Special Housing Association (SSHA), Northern Ireland Housing Executive (NIHE) and housing associations. The total housing subsidy includes the contribution from rate funds and from central government to the housing revenue accounts of local authorities; and grants paid to the New Town Corporations, the SSHA, the NIHE and housing associations. Within Greater London, the rest of England, Wales, Scotland and Northern Ireland each public sector tenant has been allocated a share of the region's total relevant subsidy based on the gross rateable value of his dwelling. Housing subsidy does not include mortgage interest tax relief, rent rebates and allowances or rate rebates (see paragraphs 16, 18 and 24 respectively).

34. The rail travel subsidies allocated are those to British Rail

passenger operations and London Transport railways (the 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 is made by dividing that subsidy between all households in proportion to their recorded expenditure on rail fares. In making both these allocations allowances are made for the use of rail travel by the business sector, tourists and the institutional part of the personal sector.

35. The bus travel subsidy includes the cost of concessionary travel schemes for senior citizens. The method used to allocate the cost of concessionary fares is to derive valuations for the various types of passes from a comparison of recorded expenditure in the FES on bus travel by holders of 'free' and 'half-fare' passes. Separate allocations are then made for the GLC, the English Metropolitan areas and the rest of the United Kingdom. Using aggregates of bus receipts, bus subsidies and the cost of concessionary fares and after making allowances for the use of road passenger transport by tourists, the business sector and institutional part of the personal sector, the total cost of providing bus travel to households in these three areas is estimated and this is then divided between households according to their usage of buses. This usage figure is derived from FES expenditure data and the value of concessionary passes estimated as described above. The amount of bus travel subsidy allocated to each household is then the cost of the bus travel provided less any payments made.

36. It must be emphasised 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.

Gini coefficient

37. The Gini coefficient is the most widely used summary measure of the degree of inequality in an income distribution. It can most easily be understood by considering a Lorenz curve of the income distribution, ie a graph of the cumulative income share against

the cumulative household share. 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. 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).

Previous articles

38. This article is the latest in an annual series. Earlier articles covering the years 1957 to 1983 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 and November 1986. The January 1981 article contains a comprehensive account of the changes in treatment over the years. As far as is practicable with the resources available, the Central Statistical Office may be able to provide additional analyses of the 1985 data and those for previous years. Enquiries should be addressed to Mr I Wilkinson, Branch 8, Central Statistical Office, Great George Street, London SW1P 3AQ.

TRENDS IN GOVERNMENT FINANCING AND EXPENDITURE 1975-1985

1. Government expenditure and financing at current prices rose throughout the period 1975-1985, largely due to inflation (Table 1). However, when allowance is made for the effects of inflation, the pattern of growth from year to year has been rather uneven, as is clear from a comparison of the growth in government expenditure with that of gross domestic product (GDP). Taking the period as a whole, the growth in GDP has exceeded the growth in government expenditure measured in current prices.

2. The growth in government transfer payments has exceeded the growth in final consumption throughout the period, quadrupling in current price terms since 1975. Much of this growth can be attributed to increases in the number of recipients, such as retirement pensioners and those out of work.

3. Of the four types of government expenditure shown in Table 1, parts of both current transfer payments and final consumption are allocated to households in this study. Both these items have shown strong growth between 1975 and 1985, and Tables 2 and 3 illustrate the changes which have taken place in their composition over this period.

Growth in gross domestic product and government expenditure, 1975-85

TABLE 1

	1975	1977	1979	1981	1983	1985
Index numbers (1975=100)						
Gross domestic product						
At current market prices	100	137	185	239	284	331
At constant (1980) market prices	100	105	111	107	112	119
General government expenditure and financing	100	120	166	227	269	306
Government expenditure categories						
Current transfer payments	100	139	197	282	337	406
Capital transfer payments	100	36	104	103	94	33
Final consumption	100	127	168	239	285	320
Capital formation and stocks	100	98	102	90	120	144

4. Taken together, the current transfers allocated to households have increased as a proportion of all transfers from 48 per cent to 60 per cent (Table 2). This has been due mainly to the growth in importance of non-contributory benefits which increased from 8 per cent of all transfer payments in 1975 to 19 per cent in 1985. Between 1975 and 1979 some of this rise was caused by the introduction of child benefit, but the main cause over the period as a whole has been the growth in supplementary benefit payments.

Contributory benefits, mainly the state retirement pension but also unemployment benefit, have also increased their share though the growth has been much less marked and there has been a slight fall in recent years. The rise in long-term unemployment (ie more than 12 months) has had more impact on supplementary benefit payments than on unemployment benefit, because the latter benefit is payable only for a year after which those still out of work may become entirely dependent on supplementary benefit.

Changes in the composition of government transfer payments, 1975-85

TABLE 2

	1975	1977	1979	1981	1983	1985
Percentages						
Current transfers						
Allocated						
Cash benefits: contributory	27.2	33.6	28.8	30.1	30.0	29.4
non-contributory	8.4	11.7	13.7	15.6	17.4	19.0
other ¹	2.2	2.8	2.4	2.1	4.5	4.9
Subsidies ²	6.1	6.8	6.6	5.6	3.9	3.4
Other ³	3.7	4.4	3.4	3.6	3.3	2.9
Total	47.6	59.3	54.8	57.0	59.2	59.6
Unallocated	31.4	34.1	32.8	34.1	33.9	38.2
Capital transfers (unallocated)	21.1	6.5	12.4	8.9	6.9	2.1
General government transfers	100.0	100.0	100.0	100.0	100.0	100.0

¹ Student maintenance grants, rent rebates and allowances.

² Housing subsidy, travel subsidies (excluding concessionary fares).

³ Institutional cost of university education, option mortgages expenditure.

Changes in the composition of government final consumption, 1975-85

TABLE 3

Percentages

	1975	1977	1979	1981	1983	1985
Current expenditure on goods and services						
Allocated						
Health	20.8	21.6	21.8	22.8	22.7	22.6
Education ¹	21.4	21.4	20.6	20.1	19.5	18.6
Welfare foods, concessionary fares	2.0	1.9	1.6	1.3	1.2	1.2
Total	44.1	44.8	44.1	44.2	43.4	42.4
Unallocated	52.6	51.6	52.3	52.3	53.4	54.5
Other final consumption ²	3.3	3.6	3.6	3.5	3.1	3.1
General government final consumption	100.0	100.0	100.0	100.0	100.0	100.0

¹ Universities are part of the personal sector in the National Accounts therefore the institutional cost of university education forms part of government transfer payments.

² Non-trading capital consumption.

5. The pattern of government final consumption has been much more stable than that of transfer payments (see Table 3). Of the items of final consumption allocated to households, expenditure on the health service has increased from 21 per cent to 23 per cent of total expenditure, whilst expenditure on the education service has fallen from 21 per cent to 19 per cent. In total the items allocated to households now constitute 42 per cent of final consumption, compared with 44 per cent in 1975.

Changes in the composition of government financing, 1975-85

TABLE 4

Percentages of total financing

	1975	1977	1979	1981	1983	1985
Allocated revenue						
Income tax	28.0	28.2	23.9	23.7	22.6	22.5
Employees' NIC	5.4	6.2	5.4	6.1	7.4	7.6
Indirect taxes on households ¹	24.3	27.2	28.1	29.1	28.7	29.7
Total	57.7	61.6	57.4	58.9	58.7	59.8
Unallocated revenue						
Borrowing	18.9	7.1	14.3	9.7	8.7	5.3
Other receipts	23.4	31.3	28.3	31.4	32.6	34.9
Total financing	100.0	100.0	100.0	100.0	100.0	100.0

¹ Including employers' NIC allocated to households.

6. The pattern of government financing changed considerably between 1975 and 1985 (Table 4). In line with government policy to shift the balance of personal taxation from income to expenditure, income tax fell from 28 per cent of total revenue in 1977 to 24 per cent in 1979, when the basic rate of tax was reduced from 33 per cent to 30 per cent and higher rates of tax were reduced. The share of income tax has continued to fall as personal allowances have been increased in real terms. However the importance of indirect taxation has increased, due to above average increases in revenue for most specific duties between 1975 and 1977 and then the increase in the rate of VAT in 1979. The net effect of these changes has been to increase the proportion of total revenue allocated to households in these articles from 58 per cent in 1975 to 60 per cent in 1985.