

The Effects of Taxes and Benefits on Household Income 1984

Summary of main results

During 1984 the Government raised and spent £146 billion. Directly or indirectly most of this revenue was raised from UK households and the expenditure benefitted 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.

The main results are:

- (i) The effect of the tax-benefit system as a whole is to reduce the differences in income between households. In 1984 taxes and benefits increased the share of total income of the bottom 20 per cent of households from 0.3 per cent to 7.1 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 persons.
- (iii) Part II of the article examines the impact on households of government expenditure programmes related to housing. Public sector tenants receive on average the greatest support (£730 per annum), followed by owner-occupiers with a mortgage (£410 per annum). For public sector tenants this support constitutes over half their regular outgoings for housing.
- (iv) Government housing support as a whole reduces income inequality between households and plays a particularly important role for the bottom 20 per cent of households

whose incomes are increased by 25 per cent on average by these programmes. However, one particular type of assistance, mortgage interest tax relief, increases in importance as income increases.

Although this article does not analyse trends in the effects of taxes and benefits on household incomes, it is useful to recall some of the results of such analysis carried out in the article in this series published in *Economic Trends*, December 1984. This showed that the composition of the 20 per cent of households with the lowest original incomes changed considerably between 1975 and 1983, with increasing numbers of households with children appearing in this income group as a result of the growth in unemployment over the period. This group now depend almost entirely on cash benefits, and the growth in the payment of cash benefits over the period largely offset the increase in inequality of income before taxes and benefits.

Introduction

This article expands on the summary of results published in *Economic Trends* in December 1985. Part I gives a detailed description of the results at each stage of the tax benefit system for all households and for retired and non-retired households separately. Part II examines the impact on households of one particular type of government expenditure, expenditure on housing-related programmes. The methods used in preparing the estimates were described in Appendix 1 of the December 1985 article but this is also repeated as Appendix 1 to this article for ease of reference. The usual detailed tables appeared in Appendix 2 of the December 1985 article and are not reproduced here.

Chart 1 illustrates the stages of redistribution which form the structure of this analysis. Initially, households receive income from

CHART 2
Allocated and unallocated items of government revenue and expenditure, 1984

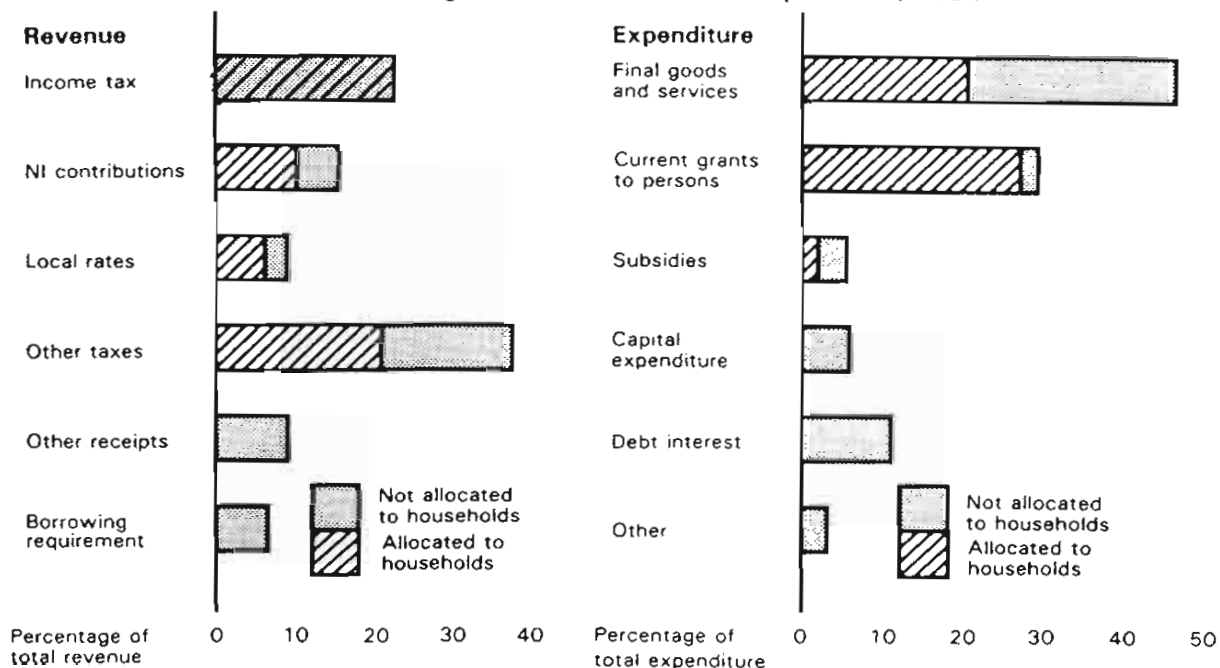
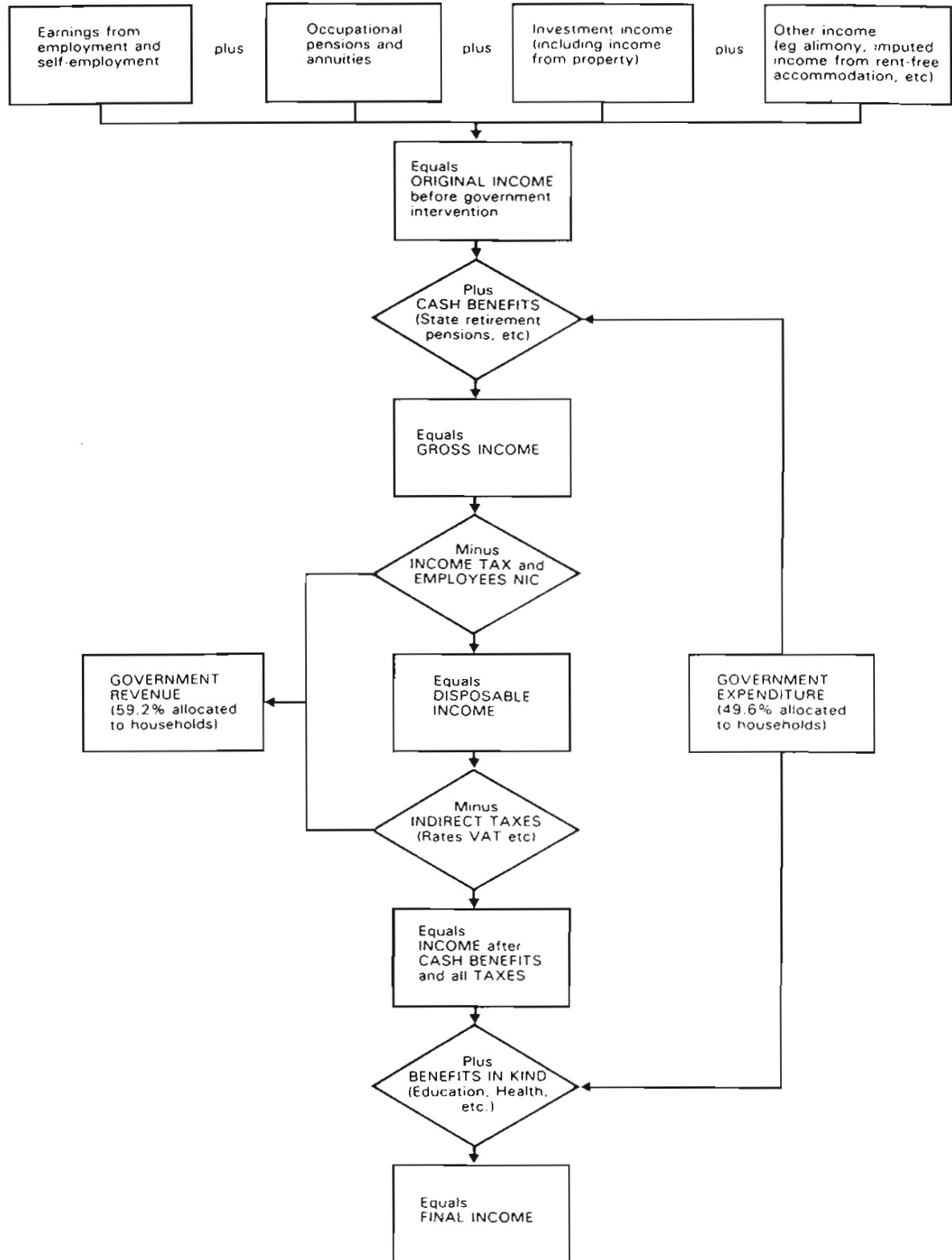


CHART 1
Stages of redistribution



Summary of the effects of taxes and benefits, 1984

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	110	2 480	7 130	11 200	19 750	8 130
<i>plus</i> cash benefits	3 130	2 400	1 140	810	600	1 620
Gross income	3 240	4 880	8 260	12 010	20 350	9 750
<i>less</i> income tax ¹ and employees' NIC	-10 ²	330	1 380	2 430	4 740	1 770
Disposable income	3 250	4 550	6 880	9 580	15 610	7 980
<i>less</i> indirect taxes	760	1 300	1 890	2 490	3 700	2 030
Income after cash benefits and all taxes	2 490	3 250	4 990	7 090	11 920	5 950
<i>plus</i> benefits in kind	1 330	1 340	1 370	1 520	1 560	1 430
Final income	3 820	4 600	6 370	8 610	13 480	7 370
<i>Percent that are public sector tenants</i> ..	59	35	27	15	8	29
Average per household (number)						
Children (i.e. aged under 16)	0.4	0.4	0.8	0.9	0.7	0.6
Adults	1.5	1.7	2.0	2.2	2.7	2.0
People in full-time education	0.3	0.3	0.6	0.8	0.7	0.5
Economically active people	-	0.6	1.3	1.7	2.3	1.2
Retired people	0.8	0.7	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.

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.

However, 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 home improvement grants as discussed in Part II of the article. In all, 59 per cent of Government revenue (including the Borrowing Requirement) and 50 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 the analysis is the Family Expenditure Survey (FES) 1984. 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 1984 7081 households participated and the response rate in Great Britain was 68.4 per cent.

PART I

RESULTS FOR ALL HOUSEHOLDS

The distribution 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 £110 per annum in 1984, compared with an average original income of about £19,750 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 persons it contains - though note that someone may be defined as economically active if they have been out of work for up to a year as long as they are still seeking work. Only one in thirty households in the lowest quintile group contain one or more economically active persons. 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 the bottom quintile group appears to have remained fairly stable between 1983 and 1984 (Table X, Economic Trends December 1984, page 106).

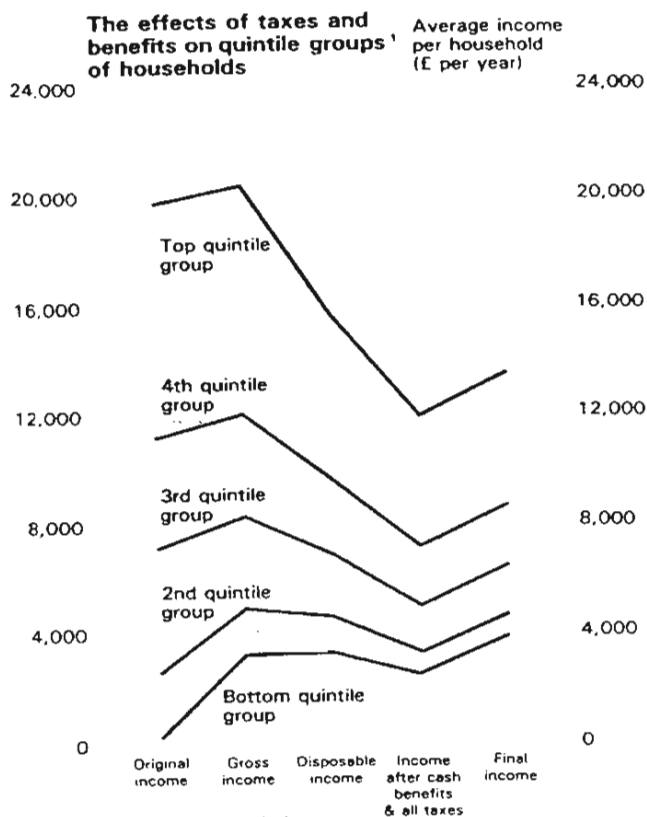
The composition of each quintile group of households ranked by original income, 1984

TABLE B

	Quintile group					Total
	Bottom	2nd	3rd	4th	Top	
Percentages						
Household type						
Retired	66	47	8	2	2	25
Non-retired						
1 adult	9	15	16	7	3	10
2 adults	6	14	27	28	27	20
1 adult with children	6	5	2	1	-	3
2 adults with children	9	12	34	40	24	24
3 or more adults	3	7	13	23	44	18
Total	100	100	100	100	100	100

Chart 3 shows how the dispersion of incomes is reduced at each stage of redistribution, so that the quintile average final income ranges from £3,820 to £13,480, a ratio of about 1:4 compared with the ratio for original incomes of about 1:180.

CHART 3

The effects of taxes and benefits on quintile groups of households


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 42 per cent. At the other end of the scale, the share of the lowest quintile group rises from 0.3 per cent to 5.6 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 49.9 per cent to 36.9 per cent shown in Table C clearly confirms that cash benefits produce the largest reduction in income inequality.

Percentage shares of total household income, 1984

TABLE C

Quintile group	Percentage in each quintile group of households re-ranked at each stage				
	Original income	Gross income	Disposable income	Post-tax ² income	Final income
Bottom	0.3	5.6	6.7	6.2	7.1
2nd	6	10	12	11	12
3rd	18	17	18	17	18
4th	28	25	24	24	24
Top	49	42	40	41	39
Total	100	100	100	100	100
Decile group					
Bottom		2.3	2.8	2.3	2.8
Top	29	25	24	25	23
Gini coefficient (percent)	49.9	36.9	33.4	35.7	32.4

² 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 nearly 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

Summary of the effects of taxes and benefits on non-retired households, 1984

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	1 370	6 240	9 410	12 980	21 380	10 280
plus cash benefits	2 910	1 140	840	710	560	1 230
Gross income	4 280	7 380	10 250	13 690	21 930	11 510
less income tax ¹ and employees' NIC	120	1 140	1 940	2 900	5 170	2 260
Disposable income	4 150	6 240	8 310	10 790	16 760	9 250
less indirect taxes	1 190	1 760	2 230	2 750	3 900	2 370
Income after cash benefits and all taxes	2 970	4 480	6 080	8 040	12 850	6 880
plus benefits in kind	1 760	1 370	1 510	1 530	1 580	1 550
Final income	4 720	5 850	7 590	9 570	14 440	8 430
Percent that are public sector tenants	55	32	20	12	6	25
Average per household (number)						
Children (i.e. under 16)	0.9	0.8	1.0	0.9	0.7	0.8
Adults	1.7	2.0	2.1	2.3	2.8	2.2
People in full-time education	0.7	0.6	0.8	0.8	0.7	0.7
Economically active people	0.6	1.3	1.6	1.9	2.4	1.6
Retired people	0.1	0.2	0.1	0.1	.	0.1

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

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.

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 £1,370 per annum in the lowest quintile group to £21,380 in the highest (Table D). 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 income from cash benefits. The major item, Child Benefit, is spread fairly evenly over the income distribution, though less benefit is received by the second and the top quintile groups where there tend to be fewer children per household (Table D). The other non-contributory benefits are mostly means-tested, in particular Supplementary Benefit, and so payments are concentrated in the lowest quintile group, though 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 results from curtailment of employment income for one reason or another. On average, cash benefits formed 11 per cent of the gross income of non-retired households; their payment resulted in a significant reduction in income inequality.

Average value of cash benefits for each quintile group of non-retired households ranked by original income, 1984

TABLE E

	Quintile group					Total
	Bottom	2nd	3rd	4th	Top	
£ per household						
Contributory						
Retirement pension	310	270	120	120	90	180
Sickness/injury related	280	130	100	70	50	120
Unemployment benefit	140	80	70	30	40	70
Other	140	90	40	30	20	60
Total	880	560	330	260	200	440
Non-contributory						
Supplementary benefit	1 040	150	70	40	40	270
Child benefit	320	270	340	320	260	300
Rent rebates/allowances	400	60	20	10	-	100
Sickness/disablement related	110	50	40	30	20	50
Other	150	60	40	60	40	70
Total	2 030	580	510	450	360	790
Total	2 910	1 140	840	710	560	1 230
Cash benefits as a percentage of gross income	68	15	8	5	3	11

The former systems of rent rebates/allowances and rates rebates were incorporated into standard housing benefit in the Housing Benefit Scheme which came into operation in April 1983. These two forms of housing assistance continue to be treated differently in the national accounts and in this article too. They are examined in detail in Part II of this article.

Income tax and National Insurance contributions

Both income tax payments and employees' National Insurance contributions are closely related to the size of original income. Payments by households of employees' National Insurance contributions in particular vary with the number of persons in employment and with their earnings. However the existence of an earnings ceiling, £250 per week during most of 1984, means that 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, 1984

TABLE F

	Quintile group					Total
	Bottom	2nd	3rd	4th	Top	
Income tax ¹	1.3	9.8	12.7	14.8	18.0	14.0
Employees' NIC	1.6	5.7	6.2	6.5	5.5	5.6
Total	2.9	15.5	18.9	21.2	23.6	19.6

¹After 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. Because of the progressive nature of the income tax system, the proportion of gross income paid in income tax rises from 1.3 per cent for the lowest quintile group to 18.0 per cent for the highest.

Indirect taxes

Indirect taxation is the only component of the tax-benefit system which does not have the effect of reducing income inequality. In total, indirect taxes form a declining proportion of disposable income as original income rises (Table G), ranging from 28.6 per cent in the lowest quintile group to 23.3 per cent in the highest. However, individual taxes have divergent effects on income inequality.

Domestic rates, tobacco duty, beer duty and intermediate taxes (see box) all fall as a percentage of disposable income as income rises. The fall in tobacco duty payments is particularly marked because the incidence of smoking is higher amongst people with low incomes. Value Added Tax (VAT) is not levied on food and certain other items which form a higher proportion of the expenditure of low income households than others, so their VAT payments are on average smaller. Car ownership increases with income and therefore so does the related expenditure, in the form of car tax, vehicle excise duty and duty on hydrocarbon oils.

Indirect taxes as a percentage of disposable income for each quintile group of non-retired households ranked by original income, 1984

TABLE G

	Quintile group					Total
	Bottom	2nd	3rd	4th	Top	
Domestic rates ¹	4.0	4.6	4.2	3.6	3.0	3.6
VAT	7.4	7.6	7.7	7.7	7.7	7.7
Duty on beer	1.1	1.2	1.2	1.1	0.9	1.1
Duty on wines and spirits	0.8	0.9	1.0	1.0	1.2	1.0
Duty on tobacco	4.7	3.4	2.5	2.1	1.3	2.3
Duty on hydrocarbon oils	1.3	1.7	1.9	1.9	1.8	1.8
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	1.7	1.7	1.5	1.3	1.5
Intermediate taxes	6.4	6.0	5.7	5.5	5.1	5.5
Total	28.6	28.2	26.8	25.5	23.3	25.6

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

Although some indirect taxes such as VAT 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 higher income households tend to save a larger proportion of their income than households with smaller incomes.

Intermediate taxes

Some taxes, such as VAT and excise duties on petrol, alcohol 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 health and education services, which together accounted for 21.5 per cent of total general government expenditure in 1984. Other items for which imputations are made are welfare foods (mainly school meals), the housing subsidy and travel subsidies, together accounting for a further 2.3 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. The bottom quintile group contains the largest number of student households and the unit costs of higher education are well above those for school education. 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 service — 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, 1984

TABLE H

	Quintile group					Total
	Bottom	2nd	3rd	4th	Top	
£ per household						
Education	910	600	750	780	780	770
National health service	580	620	630	620	650	620
Housing subsidy	130	70	40	30	20	60
Travel subsidies	40	50	60	70	120	70
Welfare foods	100	30	30	20	20	40
Total	1 760	1 370	1 510	1 530	1 580	1 550
Benefits in kind as a percentage of post-tax ¹ income	59	30	25	19	12	22

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 contains no direct information on the use of health services or other proxies which could be used. Table H shows that these benefits are lowest for the bottom quintile group but fairly flat in the remainder of the income distribution.

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. The impact of housing subsidy on household income is discussed in detail in Part II. In this article,

tax relief on mortgage interest is treated as an adjustment to income tax, not as a housing subsidy.

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. The heavy use of railways by households in the top quintile group 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, falling in the lower half of the distribution and rising in the upper half. However as a proportion of post-tax income, benefits decrease from 59 per cent in the lowest quintile group to 12 per cent in the highest quintile group, indicating that this expenditure contributes to the reduction in income inequality.

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 8 per cent and that of the highest falls to 37 per cent. Cash benefits are the major factor underlying these changes, causing the Gini coefficient to fall from 38.7 per cent based on original income to 31.4 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 the Gini coefficient. Benefits in kind

Average incomes, taxes and benefits by the number of economically active persons per non-retired household, 1984

TABLE K

	Number of economically active persons per household			
	None	One	Two	Three or more
<i>Number of households in the sample</i>	551	2 055	2 068	624
Average per household (£ per year)				
Original income	860	8 010	12 790	17 710
<i>plus cash benefits</i>	3 340	1 270	780	780
Gross income	4 200	9 280	13 570	18 490
<i>less income tax and employees' NIC</i>	90	1 820	2 760	3 960
Disposable income	4 110	7 460	10 810	14 530
<i>less indirect taxes</i>	1 130	1 930	2 670	3 880
Income after cash benefits and all taxes	2 980	5 530	8 140	10 650
<i>plus benefits in kind</i>	2 020	1 360	1 520	1 850
Final income	5 000	6 890	9 660	12 500
Gini coefficients (per cent)				
Original income	88.1	35.3	25.5	20.5
Gross income	28.6	28.3	23.1	18.9
Final income	36.5	28.1	23.0	19.1

Original income ranges from £860 per annum in households where there are no economically active persons to £17710 in households where there are three or more. Cash benefits are concentrated in households where no-one is economically active, but remain substantial, 16 per cent of original income, for those where one household member is economically active because this latter group will contain a number of households where no-one is currently in work.

Percentage shares of total household income for non-retired households, 1984

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	2.7	6.9	8.0	6.9	7.6
2nd	12	13	14	13	14
3rd	18	18	18	18	18
4th	25	24	24	24	24
Top	42	38	37	39	37
Total	100	100	100	100	100
Decile group					
Bottom	0.1	2.5	3.0	2.3	2.7
Top	25	23	22	23	22
Gini coefficient (percent)					
	38.7	31.4	28.9	31.8	29.1

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

reduce income dispersion so that the distribution of final income is virtually unchanged from the distribution of disposable income.

Relationship with economic activity

As has already been mentioned, the size of original income is largely determined by the number of economically active people in the household. This relationship between income and economic activity amongst non-retired households is explored further in Table K, in which households are classified into four groups according to the number of economically active people they contain.

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

Effects of taxes and benefits on retired households, 1984

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	-	100	530	1 580	6 610	1 770
<i>plus cash benefits</i>						
Contributory						
Retirement pensions	1 860	2 060	2 130	2 210	2 070	2 060
Sickness/ injury related	130	70	170	150	170	140
Unemployment benefit	-	-	10	20	10	10
Other	60	60	40	70	60	60
Non-contributory						
Supplementary benefit	340	110	50	30	20	110
Sickness/ disablement related	110	60	70	90	120	90
Other	520	440	240	150	70	280
Gross income	3 020	2 910	3 240	4 310	9 140	4 520
<i>less income tax</i> ¹	-10	-	20	200	1 440	330
<i>less employees' NIC</i>	-	-	-	-	20	10
Disposable income	3 020	2 900	3 220	4 100	7 670	4 180
<i>less indirect taxes</i>						
Domestic rates	100	110	180	280	430	220
VAT	140	160	190	280	510	250
Tobacco duty	90	80	70	100	100	90
Other taxes on final goods and services	110	130	160	250	460	220
Intermediate taxes	150	160	190	260	400	230
Income after cash benefits and all taxes	2 430	2 270	2 420	2 940	5 780	3 170
<i>plus benefits in kind</i>						
Education	10	-	-	20	30	10
National health service	840	900	880	870	960	890
Housing subsidy	150	100	70	60	30	80
Travel subsidies	60	70	70	100	80	70
Final income	3 490	3 340	3 450	3 980	6 870	4 230

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

considerably less. Equally, the tax-benefit system has the effect of substantially reducing inequality within the group of households containing no economically active person but has much less impact on the other groups. 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. Such households may also contain retired people who are not heads of household.

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 Supplementary Pension.

Thus cash benefits form a very high proportion of gross income for all but a few retired households with high incomes. 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 retired households. All households except those in the highest quintile group 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.

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; households in the upper part of the income distribution tend to be younger and more mobile and so derive more benefit from these schemes.

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 increase the Gini coefficient, but receipts of benefits in kind produce a reduction in dispersion.

Percentage shares of total household income for retired households, 1984

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	-	9.9	10.6	9.6	10.5
2nd	1	12	13	14	14
3rd	6	16	17	17	18
4th	18	21	21	21	22
Top	75	41	38	39	35
Total	100	100	100	100	100
Decile group					
Bottom	-	4.6	4.9	3.9	4.5
Top	54	27	24	25	22
Gini coefficient (percent)					
	72.6	31.0	27.4	28.7	24.8

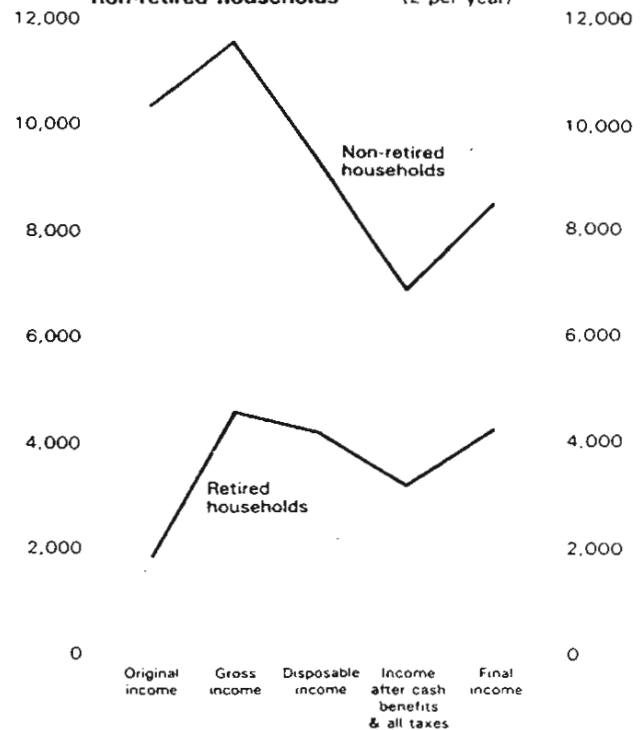
¹ Income after cash benefits and all taxes but before benefits in kind.

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 4 illustrates the different impact which the tax-benefit system has on retired and non-retired households.

CHART 4

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

Average income per household (£ per year)



PART II

IMPACT OF GENERAL GOVERNMENT HOUSING SUPPORT ON HOUSEHOLD INCOME

Government assistance towards peoples' housing costs takes many different forms and this is reflected in the fact that in the above analysis, measures connected with housing appear at each stage of the tax-benefit system. Rent rebates and allowances are part of cash benefits; mortgage interest relief is deducted from income tax payments; rates rebates are deducted from indirect tax

General government housing support, 1976-84

TABLE N

£ million

	1976	1978	1980	1982	1984
Expenditure					
Rent rebates and allowances/ rent element of housing benefit	360	480	650	860	2 640
Supplementary benefit: rent and rates element ¹	580	780	1 010	1 840	-
Housing benefit supplement	-	-	-	-	40
Supplementary benefit assistance with mortgage interest payments ²	30	30	70	170	150 ²
Renovation grants ⁴	80	100	180	430	1 190
Option mortgage scheme	120	140	220	290	- ⁵
Housing subsidy ⁶	1 300	1 650	2 560	1 560	1 380
Total housing expenditure	2 470	3 180	4 690	5 150	5 400
Reduction in taxation (foregone revenue)					
Rates rebates/ rates element of housing benefit	150	170	250	420	1 280
Income tax relief on mortgage interest payments	1 010	1 040	1 820	2 250	2 820
Total government housing support					
a. at current prices	3 630	4 380	6 760	7 830	9 490
b. at constant (1980) prices ⁷	6 310	6 010	6 760	6 510	7 200

¹ DHSS estimate.

² From 1976-82 includes assistance with ground rent.

³ Estimate for 1983.

⁴ Including thermal insulation and clean air grants.

⁵ Subsumed into the MIRAS scheme.

⁶ Exchequer subsidy plus local authority determined rate fund contributions to the housing revenue account, plus grants to housing corporations.

⁷ Deflated using the deflator implied by GDP at market prices.

payments; and housing subsidy is allocated to households as an in-kind benefit. The purpose of this section of the article is to draw these strands together to provide a picture of the impact of government's housing-related actions in total.

This particular conceptual approach to examining the housing support received by householders is by no means the only one which could be adopted. It is essentially an analysis of cash flows as measured by the national accounts and does not attempt to assess the "true" support given by government to particular tenure groups. For example, in the analysis which follows assistance to council tenants comprises rent and rates rebates received plus the housing subsidy (see Appendix 1 paragraph 33 for more details). An alternative conceptual approach often used is to regard assistance to council tenants as the difference between what they pay and the economic cost of providing their housing. Such an economic measure involves assumptions which are beyond the scope of this article and so will not be attempted, but it should be noted that the results from an alternative approach such as this could be very different from those presented below.

Table N shows the size of various housing-related programmes over the period 1976-86. Inevitably, arbitrary boundaries have to be drawn in defining housing expenditure and in this analysis the definition is restricted to programmes specifically related to private dwellings. The provision of facilities for people within institutions will also contain an element of "housing" but this would be extremely difficult to isolate and in any case, since the FES only covers people in private dwellings, expenditure on such programmes could not be allocated to households. Examples of programmes thus omitted are:

- accommodation of the "priority need" homeless in bed and breakfast establishments;

- provision of gipsy sites;
- provision of old people's homes

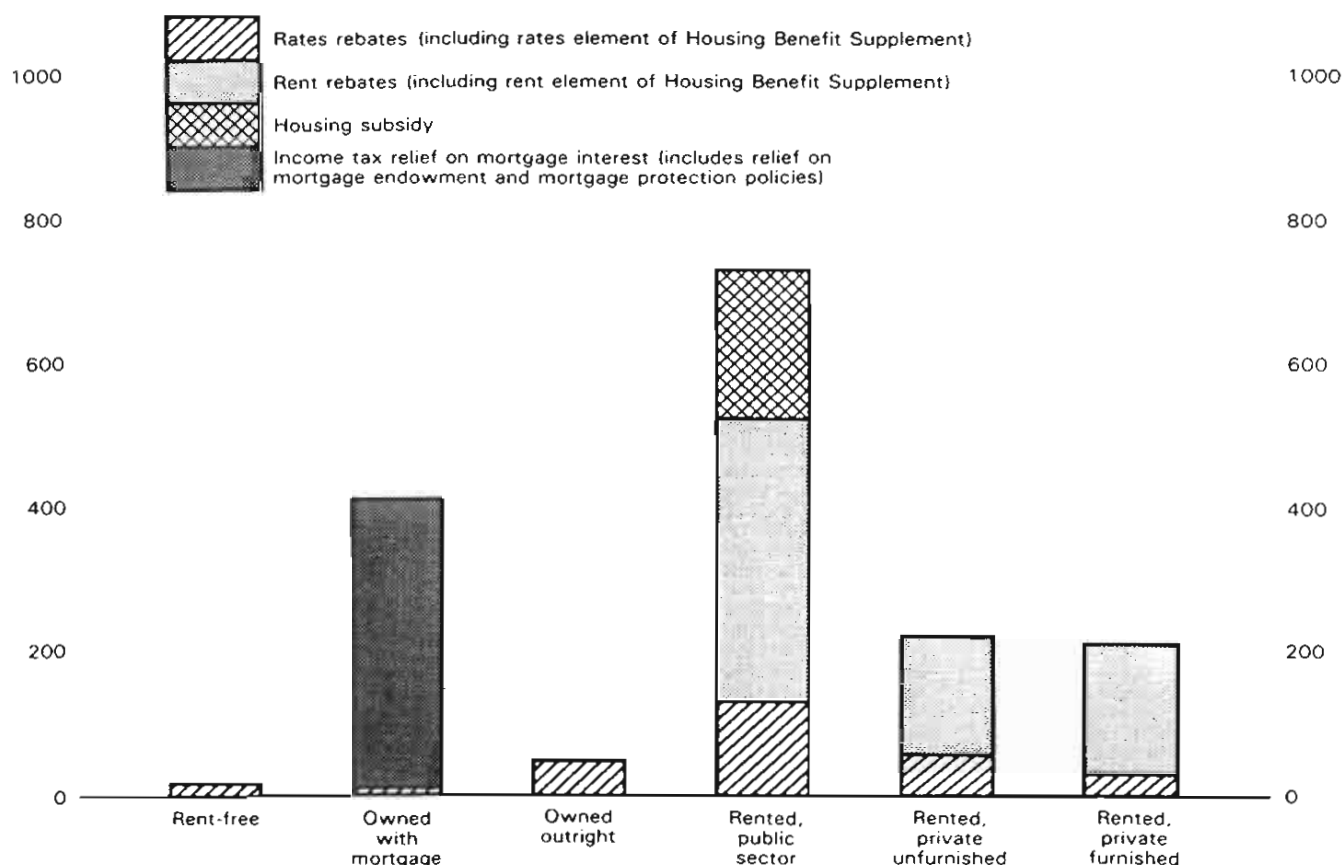
Some assistance from government comes in the form of cash expenditure through programmes such as rent rebates/allowances, and the subsidy to local authority housing revenue accounts. However assistance is also given through the reduction of people's tax payments, either through income tax relief on mortgage interest payments or through rebates to rates assessments. Although such assistance involves no cash expenditure by government, the loss in revenue represents a benefit to households. These two types of assistance are treated differently in the national accounts and so are shown separately in Table N. However, they are also added together to produce what is defined in this analysis as total government housing support. It should be noted that "cash expenditure" by government does not necessarily imply that benefitting households receive a direct cash payment; in fact of all the items covered in Table N, only rent allowances and renovation grants are received in cash.

During the period covered by Table N there have been various administrative changes affecting these programmes which have reduced comparability over time for individual items. Prior to the introduction of the Housing Benefit Scheme from November 1982 onwards, Supplementary Benefit (SB) payments included a housing element to cover claimants' rent and rates payments. This was paid in cash as part of their total benefit and the rent and rates elements could not be distinguished separately. Thus prior to 1984, the figures for rent rebates/allowances received by SB recipients include rates assistance too. Under the Housing Benefit scheme SB recipients no longer receive cash payments to cover any rent or domestic rates bills received direct from their local authority, but instead these are reduced by the amount of rebate to which they are entitled.

CHART 5

Housing support by tenure type, 1984

£ per household per year



types. Total government support is greatest for the public sector rented group, averaging £730 per household per year, followed by assistance of £410 per year for those buying their own home with a mortgage. Assistance to owner-occupiers with a mortgage comes almost entirely through income tax relief, both on their mortgage interest payments and where applicable on their mortgage endowment policy premiums, whereas assistance to public sector tenants comes in a variety of forms; 28 per cent through housing subsidy, 18 per cent through rates rebates and 54 per cent through rent rebates. In this section public sector tenants include new town corporation and housing association tenants as well as local authority tenants.

About one-third of householders owning their homes outright receive rates rebates (Table P) since a high proportion are pensioners (Table Q). On the other hand, household heads in privately rented furnished accommodation are much younger than average and over half are single people living alone. Their accommodation tends to have a low rateable value and this is reflected in the low average rates rebate received compared with the privately rented unfurnished sector. The overall level of support to the two private tenant groups is similar, though a higher proportion of tenants in unfurnished accommodation receive assistance.

As a result of the method of allocation, all council tenants receive housing subsidy (Table P); in fact, about 40 percent of local authorities in England receive no housing subsidy, but tenants of such authorities cannot be identified because FES information on local authority is withheld for confidentiality reasons. Rent and rates rebates/allowances are of course means-tested in order to target assistance on those most in need and so the high level of these benefits amongst council tenants results from the below-average proportion of full-time workers in such households.

All public sector tenants and all owner-occupiers with a mortgage receive some form of housing support. The least-aided

sector are the rent-free tenants where only 11 per cent receive any support, all of which is in the form of rates rebates; this sector includes those who are in "tied" rent-free accommodation such as agricultural workers, and those whose accommodation is provided by a relative, a friend, or a charitable institution.

Table R explores further the relationship between tenure, the age of the head of household, and the amount of housing support received. The furnished and unfurnished private-rented sectors have been combined and the rent-free sector has been dropped in this table because of sample size problems in carrying out the two-way disaggregation.

Housing support by tenure type and age of head of household, 1984

TABLE R

	Average per household (£ per year)			
	Owned with mortgage	Owned outright	Rented, public sector	Rented, private sector
Household head aged:				
Under 25 years	530	-	960	160
25-39 years	500	20	730	190
40-54 years	350	20	630	170
55-69 years	210	40	660	170
70 years or over	220	80	870	360

Support is greatest for households with heads aged under 25 years, then decreases with age but rises again for elderly households with heads aged 70 years or more. Looking at the various tenure types individually we can see that this pattern is repeated amongst public sector tenants and those buying their homes with a mortgage. Support to the private rented sector shows a much less clear relationship with age, though assistance to the elderly is nearly double that received by any other group.

Government housing support relative to household housing expenditure, by tenure type, 1984

TABLE S

	Rent-free	Owned with mortgage	Owned outright	Rented, public sector	Rented, private unfurnished	Rented, private furnished
Average per household (£ per year)						
Household expenditure ¹ on housing						
Rates ² (gross of rebates)	350	410	370	330	300	230
Rent (gross of rebates and allowances and including housing subsidy)	-	-	-	1 000	640	1 090
Insurance of structure	10	60	50	-	-	-
Repairs and maintenance	40	420	180	40	60	30
Other regular payments for housing ³						
Instalment repayments of mortgage principal	-	280	-	-	-	-
Interest payments on mortgages (gross)	-	1 260	-	-	-	-
Other ⁴	-	40	-	-	-	-
Total regular outgoings for housing	430	2 460	600	1 370	990	1 360
Total government housing support	20	410	50	730	220	170
Government support as a percentage of regular outgoings	4	17	8	53	22	13

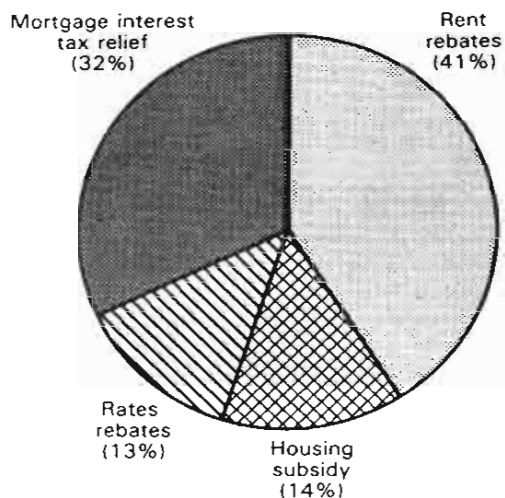
¹ As defined for consumers expenditure in the national accounts.

² Including water, sewerage and environmental rates.

³ Mainly connected with mortgages; these payments are excluded from consumers' expenditure in the national accounts.

⁴ Mortgage protection premiums and life assurance premiums on endowment mortgages (all gross).

CHART 6

Composition of housing support received by households with heads aged under 25


Households headed by a person under 25 are divided equally between the council rented sector, the private rented sector and owner-occupiers with a mortgage, and so all forms of government housing support are important to this group (Chart 6).

Table S attempts to relate government housing support to household expenditure on housing for each tenure type. The expenditure data in this table are taken direct from the FES but the classification follows national accounting conventions rather than, for example, the definitions used in the FES Annual Report.

The regular outgoings of owner-occupiers connected with their mortgages, which are not classified as consumers expenditure in the national accounts, are included in this table alongside items of current expenditure. In order to avoid confusion with either consumers expenditure defined in the national accounts or household expenditure defined in the FES Annual Report, the items in this table are termed "regular outgoings". It should be noted that lump sum payments made particularly by owner-occupiers (for example, deposits on houses, payments for structural additions or alterations) are not included either because no information is available on them from the FES or because the FES data are subject to a high degree of error.

Government housing support as a percentage of regular outgoings ranges from 4 per cent for the rent-free sector to 53 per cent for the council rented sector, where a high proportion of heads of household are economically inactive. Regular outgoings are highest for owner-occupiers with a mortgage, for whom government support represents 17 per cent of expenditure. However, it must be remembered that mortgage expenditure brings wider benefits than merely providing a dwelling for the owner: a capital asset is also being acquired, the return on which is impossible to evaluate in the framework of this analysis. The full picture of the costs and benefits of the various forms of tenure is an extremely complex one; Table S represents a much-simplified approach.

In order to assess the redistributive impact of government housing support, household final income may be calculated excluding housing support and receipts of the various types of assistance by quintile groups of households may then be estimated (Table T).

Support is highest for the bottom 20 per cent of households both in absolute terms and as a percentage of income excluding housing support. This is a result of the means-testing of the housing related social security benefits and the fact that 59 per cent of households in the group are council tenants and thus beneficiaries of the housing subsidy. It is notable that for this group, housing support increases their income by as much as 25 per cent.

Housing support by quintile groups of households ranked by original income, 1984

TABLE T

	Quintile groups					Average over all households	Gini coefficient
	Bottom	2nd	3rd	4th	Top		
Average per household (£ per year)							
Final income excluding housing support	3 050	4 270	6 140	8 330	13 120	6 980	34.7
Housing support							
Rates rebates	190	70	20	10	-	60	
Rent rebates/allowances	460	160	40	10	-	130	
Housing subsidy	130	80	60	30	20	60	
Income tax relief on mortgage interest payments	10	30	120	230	330	140	
Total	780	330	230	270	360	390	
Final income	3 820	4 600	6 370	8 610	13 480	7 370	32.4
Housing support as a percentage of income excluding housing support (percentages)							
Rates rebates	6	2	-	-	-	1	
Rent rebates/allowances	15	4	1	-	-	2	
Housing subsidy	4	2	1	-	-	1	
Income tax relief on mortgage interest	-	1	2	3	2	2	
Total	25	8	4	3	3	6	

Housing support plays a less important role for households further up the income distribution. In absolute terms it is lowest for the middle quintile group for whom neither the social security benefits nor income tax relief on mortgage interest makes a particularly important contribution to income. However, since support decreases in percentage terms as income increases throughout the income distribution, the overall effect is a progressive one and so government housing support can be concluded to reduce income inequality between households. This is also reflected in the Gini coefficient which is reduced from 34.7 per cent to 32.4 per cent by the addition of housing support to income.

Looking at the items of housing support individually, we can see that all except mortgage interest tax relief are progressive in their own right. Mortgage interest relief rises as income rises, though in percentage terms it falls slightly for the top quintile group.

The elements of the system which contribute most to the reduction in inequality are the housing-related social security benefits, and it may be recalled that the growth in this expenditure has been particularly strong since 1976 (Table N). At the same time, housing subsidy has declined in real terms and since this expenditure benefits appreciable numbers in the upper part of the income distribution whereas the income-related benefits do not, this switch will have had some redistributive effect. On the other hand, mortgage interest tax relief has also grown in real terms, though not as strongly as social security benefit expenditure. From this evidence it is difficult to gauge what the trend has been in the overall effect on households of government housing support, particularly since no allocation to households has been possible for renovation grants which have also grown considerably over the period. Nevertheless, the fact that the income-related benefits have grown from 30 per cent to over 40 per cent of total housing support seems likely to have increased the redistributive impact.

Methodology and Definitions

APPENDIX 1

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 are not covered in the FES and which are difficult to apportion to individual households. Indeed, most people would probably not think of these as leading to a reduction in their personal incomes. 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 1984, containing detailed data on household characteristics, income, and expenditure, was published in February 1986. 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 1984 was 7081. The response rate in Great Britain was 68.4 per cent. The available evidence suggests that older households, households where the head is self-employed, those without children and very high income households, are less likely to co-operate than others. In addition response in Greater London is noticeably lower than in other areas (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)). However at present the results in the article are based on the responses of those households which actually co-operated in the survey. This means that some of the figures differ from those produced by other surveys (see also 'Differential response in the Family Expenditure Survey: the effect on estimates of redistribution of income' by R Harris in *Statistical News* No. 39, November 1977 (HMSO)).

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; 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

II. 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* other benefits = 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 twelve 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 on *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, Death grant, Maternity allowance, Christmas bonus for pensioners and others, other contributory benefits.

Non-contributory

Supplementary benefit, Child benefit, Rent rebates and rent allowances, Attendance allowance, Mobility allowance, War pensions. Non-contributory invalidity pensions (Severe disablement allowance), Family income supplement, Old persons pensions, TOPS/YOPS etc. awards, Student maintenance awards, Maternity Grant, other non-contributory benefits.

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. Supplementary Benefit includes any supplementary allowances.

17. Income tax and employees' and self-employed contributions to National Insurance and National Health services are then deducted to give disposable income.

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 1984 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.

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 a 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 weighted 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 the 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 the effects of *benefits in kind* 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
- Concessionary bus fares for senior citizens

30. *Education benefit* is estimated by the Department of Education and Science as the cost per pupil or student in special schools, primary and secondary schools, universities, and other further education establishments. The value of the 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 not counted).

31. The value of *school meals and other welfare foods* is based on their cost to the public authorities. Any payment by the individual households 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 health services by people of the same age and sex, and according to the total cost of providing those services. The benefit from the 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), the 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 the 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 tax payer rather than to some other party, for example, 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 1984 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 and December 1985. 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 can provide more detailed analyses of these data. Enquiries should be addressed to D Westcott, Branch 8, Central Statistical Office, Great George Street, London SW1P 3AQ. Telephone 01-233 8300.