Tax Reform in the UK and Changes in the Progressivity of the Tax System, 1985–95

CHRISTOPHER GILES and PAUL JOHNSON[1]

I. INTRODUCTION

From the middle of the 1980s until the end of that decade, the government experienced a growing economy and consequently buoyant tax revenues. In addition to cutting the public sector borrowing requirement (PSBR) and increasing spending, these revenues were used as a means of financing massive tax cuts, and in particular cuts in income tax rates. By the early 1990s, however, it had become clear that tax revenues had been cut to an unsustainably low level as recession led to a PSBR that threatened to run out of control. In response to this, in the two Budgets of 1993 the two Chancellors introduced a package of tax increases which, in terms of revenue raised, will reverse most of the tax reductions of the late 1980s. But taxes were increased in a way very different from that in which they were reduced. The overall effect has been a substantial reform of the UK tax system.

This paper examines the changes that have been made in the tax system as they affect the personal sector, i.e. changes to taxes on personal income, on personal property and on expenditure. We start the analysis with the 1985 tax

system as the base, for it was in 1986 that the first cut in income tax rates was introduced and the trend for significant tax cuts was set. And it was from this date that taxation as a proportion of GDP started to fall steadily until the end of the 1980s. We end the analysis with the tax system as it would have been left at the end of 1995 by the tax changes announced in the 1993 Budgets. A decade of contrasting tax changes are examined.

We are not looking at what happened to the income distribution as a result of the changes to the tax system. Rather, we are addressing the question, 'What would happen to the income distribution if the 1985 tax system were to be reimposed now instead of the 1995 system?'.

In concentrating on personal taxes, we ignore changes to corporate and other taxation which, even though they do not impact directly on the personal sector, are felt by individuals in the end.[2] Assessing the incidence of such taxes is a very complex task[3] and relatively unimportant over the period we are looking at, since most of the changes were to personal taxes. We also avoid taking into account the many changes to the benefit system that have taken place since the mid-1980s.[4] This allows us to focus directly and deliberately on the changes in taxes.

We start by outlining the main tax changes over the period, assessing the change in the tax system as a whole and estimating the revenue consequences of the changes. We then go on to assess the distributional impact of all the changes, looking at how people at differing income levels are affected, and then contrast the effects of the pre-1993 changes with those of 1993. In doing so, we show how the 1993 Budgets have affected people's incomes. Finally, we go on to look at the progressivity of the tax system in the UK and how it has changed over the period.

II. CHANGES TO THE SYSTEM

In 1986, the basic rate of income tax was cut from 30 per cent to 29 per cent, then to 27 per cent in 1987 and to 25 per cent in 1988. In 1988, Nigel Lawson also abolished all rates of income tax above 40 per cent, thereby reducing the top tax band from 60 per cent to 40 per cent. Personal allowances were also increased in real terms. Prior to 1993, there were just two significant increases in income tax — the increased income tax charge on company cars and the reduced generosity of mortgage tax relief.

---

[2] We also do not model capital gains tax or inheritance tax as it is impossible to do so in the framework of our model.

[3] See Dilnot, Kay and Keen (1990) for an exposition of the problems of assessing incidence and a possible solution.

[4] See Dilnot and Webb (1988) for an assessment of the Fowler reforms — the most important of the changes to the benefit system — and Johnson and Stark (1989) for an assessment of the distributional impact of tax and benefit changes over the 1980s.

By 1989, all the major cuts in income tax rates had been achieved. But one significant reform to the direct tax system was introduced with the alteration to the structure of employee National Insurance contributions (NICs). This reform, which cut NI payments for most people, removed some of the anomalies in the way in which low earners were treated by NICs.[5]

Following an initial announcement in 1987, joint income taxation of husband and wife was replaced by independent taxation in 1990. But the biggest change of that year was in local taxation, with the Community Charge (or poll tax as it has become universally known) replacing domestic rates. A tax on the estimated rental value of a home was replaced by a per capita charge unrelated to either income or property value.[6] The unpopularity of the poll tax, prompted in part by its high level, saw it subsidised to the tune of £140 per adult in Norman Lamont's first Budget in 1991. This was paid for by an increase in the standard rate of VAT from 15 per cent to 17.5 per cent. This Budget also saw the first of what has proved to be an enduring series of measures in the restricting of the value of Mortgage Interest Relief at Source (MIRAS) to the 25 per cent basic rate of tax.

Even by 1992, election year, there was no inkling of what was to come by way of tax increases. Indeed, the 1992 Budget included the last of the reductions in income tax rates — the introduction of a 20 per cent band on the first £2,000 of taxable income. Prior to the election of that year, another major tax change had been announced — the abolition of the poll tax and its replacement with the council tax. Rather like the poll tax's predecessor, this is a tax based on the value of a property (but with a reduction for single-person households). It is payable according to the value band in which a property falls, rather than constantly varying with rental value as did domestic rates.

By 1993, the burgeoning PSBR had made substantial tax increases, or spending cuts, inevitable. The scale of the direct tax increases announced to take effect in 1993 was rather small, the main measure being the freezing of income tax allowances. There was even a small income tax reduction in the widening of the 20 per cent band from £2,000 to £2,500 initially, and to £3,000 by April 1994. But in both the 1993 Budgets, major increases for the future were announced. The main rate of employee National Insurance contributions was set to rise from 9 per cent to 10 per cent in April 1994. It was announced that the value of MIRAS would fall from 25 per cent to 20 per cent in April 1994 and to 15 per cent in April 1995. Similarly, the value of the married couple's allowance (MCA) was set to fall to 20 per cent and then to 15 per cent.

The imposition of VAT on domestic fuel, announced in the March 1993 Budget but not to be fully implemented until April 1995, was probably the most controversial of the measures announced in 1993. It represents the most

---

[5] For a detailed discussion, see Dilnot and Webb (1989).

[6] See Ridge and Smith (1991) for details of this change.

significant widening of the VAT base since it was introduced in 1973 and will raise nearly £3 billion per year by 1996–97. However, being a tax on a necessity, consumption of which is relatively invariant with income, it would have hit the poor particularly hard. As a result, a compensation package of increases to means-tested benefits and to the state pension was announced in the second Budget of 1993. For pensioners, the compensation will come close to offsetting the VAT imposition. The lower compensation for others on means-tested benefits will leave them worse off. Poorer families with children who use more fuel than those without children will be particularly badly affected.

The other main tax increases announced in 1993 were increases in excise duties, notably on petrol and tobacco. They were both increased substantially in 1993, and beyond that the Chancellor has committed himself to raising the former by 5 per cent per year in real terms into the future and the latter by 3 per cent per year. Over the period since 1985, there have been other changes to excise duty levels. All the changes are illustrated in Figure 1, which includes the already announced increases in tobacco and petrol duties for 1994 and 1995. The overall effect has been for the duty on leaded petrol and cigarettes to rise substantially in real terms while real duties on alcohol, especially on spirits, have fallen.

FIGURE 1

Real Changes in Excise Duties, 1985-95
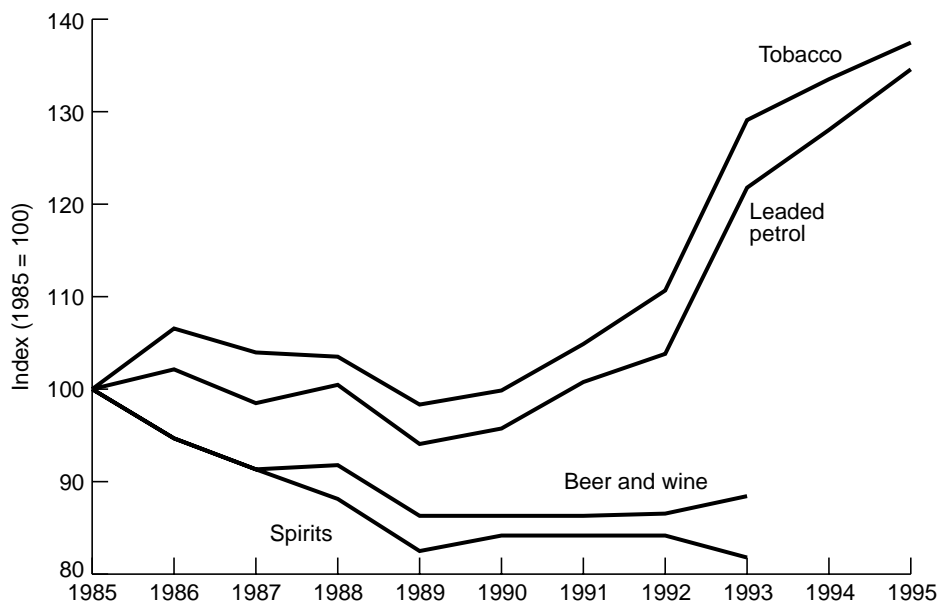
This completes the description of the main tax changes since 1985 as they have affected the personal sector. Other changes which have occurred gradually are reductions in the real value of the MIRAS ceiling which has remained at £30,000 in nominal terms over the whole period, and a lowering in real terms of the point at which higher rate tax becomes payable. This, together with real earnings growth, has actually led to an increase in the number of higher rate taxpayers. Clearly the scope of changes has been complex but a number of general features can be discerned:

(1) There has been a general reduction in marginal rates of direct tax. Despite the 1 per cent increase in NICs from 1994, a basic rate taxpayer will have a total marginal rate 4 per cent lower than in 1985 and higher rate taxpayers will face marginal rates up to 20 per cent lower than previously.

(2) There has been a widening of the income tax base. The falling value of the MIRAS ceiling, the restrictions to the values of MIRAS and the MCA, and the substantial increases in the deemed taxable values of company cars have all been part of this move.

(3) There has been a move towards indirect taxation. Increasing VAT to 17.5 per cent and extending it to domestic fuel are the biggest examples, but the increases in excise duties and indeed the imposition of tax on insurance premiums and aeroplane journeys also form a major part of this change.

(4) Local taxes have been reformed twice, with the final system looking more like the original system than the intermediate one. Had it not been for the dramatic poll tax subsidy of 1991, there would have been a general increase in the level of local taxes, but as it is, they have fallen somewhat over the period. The subsidy from VAT formed part of the switch from direct to indirect taxation.

Some of the most important tax rates and levels, as they were in 1985 and as they were announced to be in 1995, are set out in Table 1. Figures are in real 1993 prices. All 1985 values have been uprated by inflation between December 1985 and September 1993, during which time prices increased by 56 per cent. This is what the tax system as a whole would have been by April 1994 if all the government had done over the period had been to increase allowances, limits and duties to take account of inflation.

One way of assessing the relative importance of these changes is to see how much each cost or raised. This will also tell us the size and direction of the net change in personal sector taxation. It is in fact rather hard to determine this change from official publications. For example, the higher and basic rate cuts of the late 1980s took place in the context of a rather different tax base from that which now exists. Therefore increasing the rates back to their former levels would raise a different amount of money from that which it cost to cut them in the first place. As incomes have risen, more would be raised by restoring the

rates to their former levels. In other words, a tax cut that cost £1 billion when it was implemented in 1985 could well be reducing tax revenue in 1994 by, say, £1.5 billion below what it would otherwise have been.

TABLE 1

Main Tax Changes between 1985 and 1995

	1985	*1995*
Income tax		
Basic rate	30%	25%
Highest rate	60%	40%
Lowest rate	30%	20%
Personal allowance	£3,445	£3,445
MCA level	£1,950	£1,720
MCA rate	Marginal rate	15%
Basic rate limit	£25,300	£23,700
MIRAS ceiling	£46,800	£30,000
MIRAS rate	Marginal rate	15%
National Insurance contributions		
Main rate	9%	10%
Indirect taxes		
VAT rate	15%	17.5%
VAT rate on domestic fuel	0%	17.5%
Excise duty on a gallon of petrol	£1.27	£1.69
Excise duty on 20 cigarettes	£0.81	£1.13
Excise duty on a pint of beer	£0.28	£0.24
Excise duty on a bottle of wine	£1.15	£1.01
Excise duty on a bottle of spirits	£7.38	£5.55

Notes: The figures for 1995 are based on the real value of allowances and duties in 1993 prices. They do not include the 'RPI effect' of the reforms to indirect taxation on inflation. We included these effects in our modelling and they are described later.

In order to give an estimate of the cost/benefit of each change, we used the IFS tax and benefit model,[7] on which the rest of this analysis is based, to simulate each of the major reforms cumulatively. The model shows the effects of tax changes by calculating their impact on a sample of over 7,000 households drawn from the 1992 Family Expenditure Survey (FES). Each household is

---

[7] For a full description of the model, see Johnson, Stark and Webb (1990).

weighted, or grossed up, to be representative of the family types found in the whole UK household population using information from the 1991 census. The data are uprated to 1993 prices, thereby allowing us to determine the present-day cost/benefit of each change.

One further point to bear in mind is that the cost of each change will differ according to the order in which the simulation is carried out. For example, the apparent costs of cutting the basic rate and introducing the 20 per cent lower band will individually depend upon which is done first — though of course the total cost will be unaffected. Where this issue arises, the changes were simulated according to the chronological order in which they were originally made.

Table 2 shows the revenue effects of the major changes, each having been cumulatively added to the 1985 base tax system. The overall effect has been to reduce the direct burden of taxes on the personal sector by around £5.2 billion annually in current prices. As we see below, this implies an average gain to households of about £4 per week, though this gain is very unevenly spread.

TABLE 2

Revenue Raised/Lost

Measure	Gross revenue effects		Net revenue effects
	(£ billion raised)	*(£ billion lost)*	*(£ billion raised)*
Basic rate to 25%	0.0	10.3	−10.3
Top rate to 40%	0.0	3.8	−3.8
Introduction of 20% band	0.0	3.5	−3.5
Other income tax	1.9	0.0	1.9
MCA restriction	2.5	0.0	2.5
MIRAS reductions	3.3	0.1	3.2
NI reforms and increase	2.2	3.5	−1.3
VAT raised to 17.5%	2.7	0.0	2.7
Local tax changes	0.7	1.8	−1.1
Excise duties, pre-1993	0.2	0.0	0.2
VAT on domestic fuel and post-1993 excise duties	6.0	2.0	4.0
Insurance tax	0.3	0.0	0.3
Total	19.8	25.0	−5.2

Easily the biggest single change in revenue terms was the 5 per cent reduction in the basic rate of income tax. This is followed by the costs of reducing the higher rate of tax and the introduction of the 20 per cent band. All of these are,

of course, reductions in income tax rates. Even NI raises £1.3 billion less now than it would have done had it not been changed, despite the 1 per cent rise in the main rate; this reflects the costs of the reforms implemented in 1989.

As one would expect, most of the large revenue-raising measures were the indirect tax increases, with VAT on fuel and the excise duty increases from 1993 raising £3 billion each and the 2.5 per cent rise in the VAT rate raising £2.7 billion.[8] But the single biggest revenue-raising change has been to MIRAS. The reduction in the real value of the ceiling and the restriction of its value to 15 per cent combine to make changes to MIRAS raise 3.3 billion. At higher levels of interest rates, the saving would be higher still. The restriction of the married couple's allowance to 15 per cent raises £2.5 billion.

Three other points need explaining further in relation to Table 2. The first is the 'other income tax' row. In this are included all the changes to income tax not specifically mentioned elsewhere in the table. These include the increases in company car taxation, the lowering of the basic rate limit, the abolition of composite rate tax and other minor changes to the levels of allowances. Secondly, there are the changes to benefit rates and tax allowances that follow from the effects on the RPI of the imposition of VAT on domestic fuel and the large excise duty increases from 1993.[9] These include the compensation package for VAT on fuel. The £2 billion cost represents one-third of the £6 billion gross raised by these measures. Finally, the £0.7 billion raised by the lowering of local tax bills represents the savings on council tax benefit resulting from the lower bills.

III. EFFECTS OF THE CHANGES

1. Measurement Issues

We turn now to explain the impact of all these tax changes on people's incomes. There are many ways of doing this. The simplest is to choose a range of 'representative' individuals and calculate the tax bills faced by them in each of two regimes. Such a method, however, gives little idea of the effect of taxes on the population as a whole. It is impossible to choose just a few individuals and

---

[8] This is a significant underestimate of the total amount of revenue raised by increasing VAT. This reflects two factors. Firstly, not all VAT paid by companies is reclaimed and so a small proportion of VAT acts effectively as an intermediate tax. Secondly, total consumer expenditure is under-recorded in the FES, in particular spending on goods on which VAT and excise duties are charged.

[9] From 1993 to the end of 1995, we calculate the effect of the 1993 Budgets on inflation will increase the RPI to a level 1.49 per cent higher than it otherwise would have been. This results from VAT on fuel, increased excise duties and higher-than-inflation increases in the council tax in 1994. We have adjusted benefit rates and tax thresholds for the 1995 tax system accordingly. The 'RPI effect' would also have presented a problem for the 1985 system, but changes in taxes from 1985 to 1993 had almost a neutral effect on the RPI so the problem did not exist.

make them genuinely representative. Instead, as explained above, we use a model which allows us to estimate the effects of all the changes on the population as a whole.

That leaves us with the question of exactly what we are comparing. In this exercise, we look at the effects of two different tax systems on the same population. In other words, we are not comparing the effect of the 1985 tax system on the 1985 population with that of the 1995 system on the 1995 population. We are comparing the effects of the two systems on the same population.

To allow us to do this, we need to be able to express all the variables in terms of the same prices. We have done this by uprating the 1985 tax system[10] by price inflation to September 1993 — this being the date to which the actual tax system should have been indexed. This methodology means that we take no account of the effect of increasing real incomes on tax revenues and average tax rates. For the fact that average real earnings grow means that, if the tax system is uprated in line with prices, average tax rates will grow if the tax system is progressive. Hence if the government made no changes to a tax system over a number of years other than to index it in line with price inflation, tax revenues would grow as earnings grew. Taxes paid by someone on average earnings would be higher at the end of the period than at the beginning simply because average earnings are higher. Given that the statutory requirement is only to raise components of the tax system in line with prices, and that we are interested in the effects of the two tax systems on people at particular income levels, we deliberately avoid showing the effects of this 'fiscal drag' as a tax change.

The most difficult part of the tax system to model satisfactorily, given the data that we have, is the local tax system. In the data that we use, we have no information on the value of the house, let alone rateable value or council tax level or banding. In modelling changes in local taxes, we make use of a hedonic price index developed by Davies and Rajah (1992) and used by Giles and Ridge (1993) to estimate house value on the basis of such variables as region, number of rooms and other household characteristics. This gives us an ordering of values which we then match to council tax bands so that we have the right number of households in each band. Regional information in the FES allows us to make an estimate of Band D council tax for each household. Because we have no information on rateable values or previous rates bills, we do not attempt to model the rates system explicitly when calculating taxes in the 1985 system. Instead, we use the council tax structure, except that we do not allow the 25 per cent rebate for single-person households, and impose higher bills in 1985 reflecting the degree to which local tax bills have fallen over the period. This fall combines the effects of both central and local government policies. It includes the 7 per

---

[10] Uprating the tax system effectively involves uprating the income tax allowances and thresholds, the NI lower earnings limit (LEL) and upper earnings limit (UEL), MIRAS threshold and excise duties.

cent increase in local tax bills implied by the measures introduced in the November 1993 Budget.

This is clearly not a perfect way of modelling the local tax system but it should provide a reasonable approximation to the effects of the changes. Simply ignoring the local tax changes was not an option because the reductions in levels were partly offset by the rise in VAT which we are modelling. To have shown the effects of the one without the other would have produced spurious results.

Finally, what is the role of the benefit system in all of this? We use the same (1994) benefit system throughout — the model calculates benefits as well as taxes — except that it is uprated in the 1995 system to take account of the compensation package for VAT on fuel and the impact of the VAT and excise duty changes on the RPI. In fact, the full impact on the RPI of all the tax changes which will come into effect by the end of 1995 is included in the benefit system even though some of these increases will not feed through to benefits until April 1997 because of the lags involved in indexing benefits.

Had we taken account of all the benefit changes over the period, which included the complete overhaul of the means-tested system in 1988,[11] the results for the lower deciles would have been affected — poorer families with children did relatively well from these changes, pensioners and those without children relatively badly. Because the changes were roughly cost-neutral, the overall distributional effects would have been minor by comparison with those caused by tax changes.

2. Effects over the Whole Period

Were the 1985 tax system to be in place rather than the 1995 system, then households would have been left £4 per week better off on average. This is the direct implication of the changes costing £5.2 billion annually — a sum of money which is distributed between over 20 million households in the UK. Note that this does not mean that the average household gained £4 per week. An average gain overall is quite consistent with the household in the middle of the income distribution, or the household with mean income, losing, because gains are concentrated either at the top or at the bottom of the income distribution.

In fact, the gains were distributed very unevenly. Rather than all households gaining £4 per week, 47 per cent of households gained and 37 per cent lost. The main determinant of how much a household gained, or indeed whether or not it gained at all, was its income. High-income households gained substantially from the reductions in income tax rates. For most high-income households, these outweighed the negative impact of indirect tax rises. For poorer households, however, which gained little or nothing from the reductions in income tax rates,

---

[11] See Dilnot and Webb (1988) for a description and discussion.

the overall effect of the changes was to reduce post-tax incomes. This pattern is illustrated in Table 3 and Figure 2.

TABLE 3

Impact of Tax Changes, 1985–95, by Decile Group

Decile	Average gain (£ per week)	Average gain (% of net income)	Percentage losing	Percentage gaining
1	–3.0	–2.9	66	7
2	–1.4	–1.4	44	13
3	–1.8	–1.5	47	23
4	–1.1	–0.8	43	40
5	0.7	0.4	37	50
6	1.6	0.7	33	57
7	3.1	1.2	29	64
8	4.4	1.5	25	69
9	6.3	1.8	23	72
10	31.3	5.8	20	76
All	4.10	1.70	37	47

Table 3 shows average gains/losses and numbers of gainers/losers[12] by equivalent income decile. Households are placed in deciles according to their actual income in the data adjusted using the McClements equivalence scale[13] (McClements, 1977) to take account of household size. Decile 1 contains the 10 per cent of households with the lowest incomes, decile 10 the 10 per cent with the highest incomes. There is a clear pattern — the richer the decile, the greater the gain, with the poorest four deciles actually losing on average as a result of the changes. The improvement in fortunes is gradual until the richest decile is reached. The average gain here is nearly five times that of the ninth decile and approaching eight times that of the whole population. The only deviation from this pattern of increasing gains (decreasing losses) as higher deciles are reached is at the second decile. Households in this decile do rather less badly than those in the next group. This reflects the heavy concentration of pensioners in this decile. They do somewhat less badly than other families with roughly similar

---

[12] In all the tables that follow, we count gainers or losers as those whose net income changes by at least £1 per week. Those who lose or gain less than £1 are counted as having unchanged incomes. This avoids classing trivial changes as gains or losses.

[13] This is the scale used in official government statistics such as Households Below Average Income (Department of Social Security, 1993) and in articles on income distribution in Economic Trends (Central Statistical Office, 1993).

incomes, partly because they are less badly affected by excise duty increases — being less likely than the average to smoke or drive — and partly because they were more generously compensated for the imposition of VAT on domestic fuel than were other groups dependent upon benefits.

Changes as a percentage of disposable income display a similar pattern, though the differences are less marked between the top decile and lower income groups.

The variation even within deciles is very clear from the table. Despite the very large average gains in the top decile, 20 per cent of those in it are actually losing as a result of the changes. These are largely households losing heavily from the restrictions to MIRAS or the increases in the taxation of company cars or with exceptionally large VATable expenditures. Conversely, there are a few households right at the bottom of the income distribution which are left better off. These are typically households with very low expenditures, benefiting from VAT compensation measures.

This mixed pattern of gainers and losers, and the distribution of gainers and losers even within deciles, is displayed graphically in Figures 2 and 3. They show the proportions of each decile losing or gaining particular amounts. Figure 2 shows the pattern of changes as a percentage of income, while in Figure 3 they are shown in pounds per week. The figures show quite clearly that it is among the rich deciles that a large proportion of households are gaining significant amounts and that there are many large losers in the bottom decile, although they also show that there are exceptions to the norm in each decile of income.

The bars near the front represent poorer deciles with the top decile up against the back wall. Bars on the left show big losers, those on the right show big gainers. For example, Figure 2 shows that over a third of the bottom decile lost more than 3 per cent of their net income, while 45 per cent of the top decile saw their net income increased by more than 3 per cent compared with tiny proportions of the bottom deciles.

There are numerous ways other than by income decile in which one could look at the distributional effects of the changes, but in general it is the difference in effects according to income which dominate. We look briefly here at distributional effects by household type; these display some interesting patterns that are not immediately clear from what we know about the effects of the changes on households at different points in the income distribution.

Table 4 shows the pattern of changes among the different types of household. A majority of all those non-pensioner households where there is nobody in work lost over the period. Worst hit were unemployed couples with children, followed by lone-parent families, with over three-quarters of the former and nearly two-thirds of the latter losing from the changes. This partly reflects the fact that families with children are hit particularly hard by the imposition of VAT on domestic fuel and are more likely to have a mortgage. Even among earners, those with children are much more likely to have lost than are those without. Even so,

average changes were positive within these groups, reflecting the fact that the gains of the minority were much greater than the losses of the majority. Two-earner couples gained much more frequently than single-earner couples, reflecting higher total incomes and twice the opportunity to gain from direct tax cuts.

Perhaps surprisingly, pensioners appear to do rather better than the average, particularly in terms of the small proportion losing. This is largely explained above in terms of the VAT compensation package and their low use of excisable goods.

FIGURE 2

Proportions of Each Decile Gaining Certain Amounts, in Percentages of Net Income
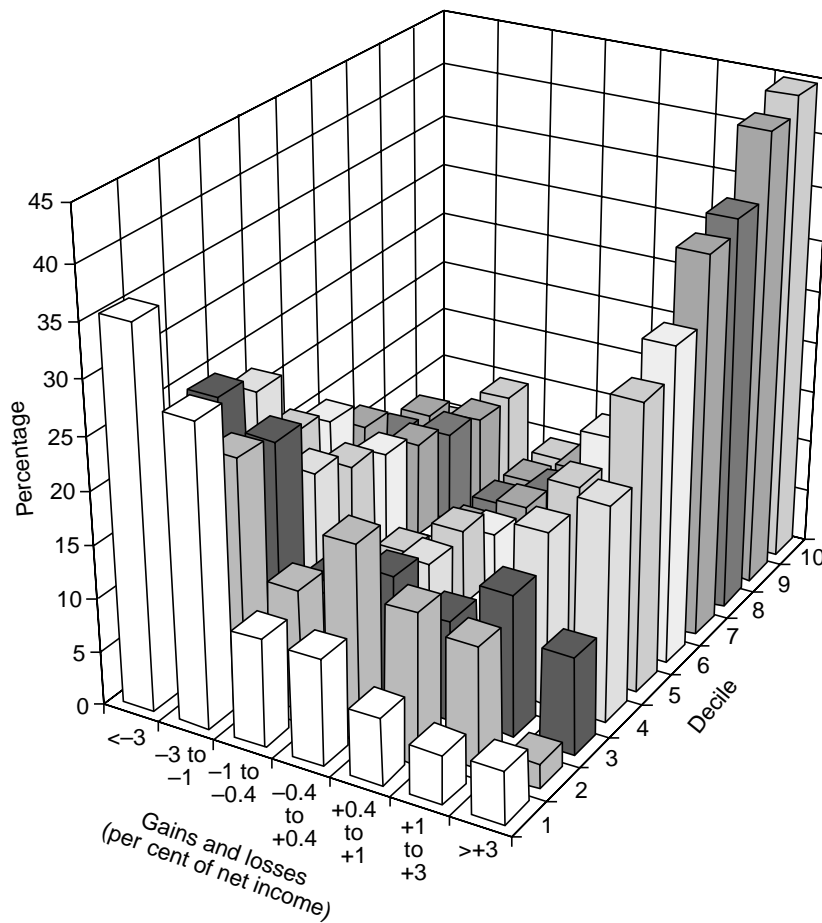
FIGURE 3

Proportions of Each Decile Gaining Certain Amounts, in Pounds per Week 3.
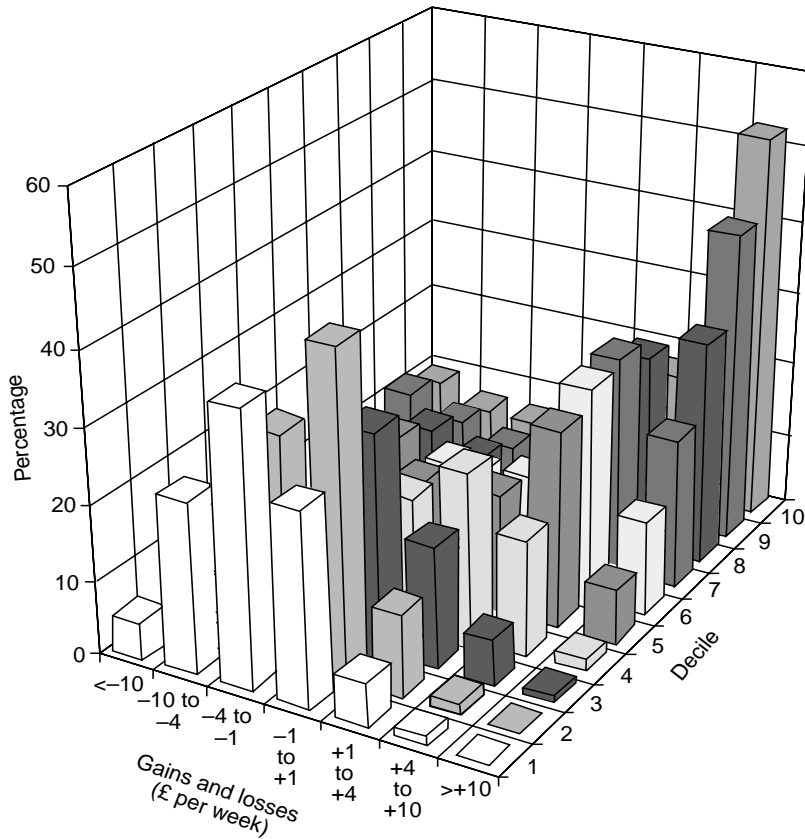
Changes Before and After 1993

Until 1993, tax changes, if not entirely one-way, were very much in a downward direction. The biggest increase before 1993 was the increase in the rate of VAT from 15 per cent to 17.5 per cent and this was specifically intended to be offset by a reduction in local taxes. As late as 1992, income tax was cut by the introduction of the 20 per cent band. Given the tax increases that followed in 1993, it seems natural to split the period in two and look at the impact of tax

changes prior to 1993 and those announced in the two Budgets of that year. This we do in Tables 5 and 6.[14]

TABLE 4

Proportions Gaining/Losing by Family Type

Family type	*Percentage losing*	*Percentage gaining*	*Average gain (£ per week)*	*Average gain (% of net income)*
Single, unemployed	58	21	−1.1	−1.1
Single, employed	16	76	8.0	3.9
Single-parent family	64	13	−1.6	−1.0
Unemployed couple, no children	53	31	0.1	0.1
Unemployed couple with children	78	8	−4.4	−2.7
One-earner couple, no children	44	46	5.3	2.1
One-earner couple with children	62	28	6.0	2.0
Two-earner couple, no children	28	65	6.0	1.7
Two-earner couple with children	46	47	4.7	1.3
Single pensioner	16	48	3.8	3.3
Couple pensioner	29	51	3.2	1.7
All	37	47	4.10	1.70

The contrast between the tables is startling. While only 10 per cent of the population were made worse off by the 1992 system in comparison with the 1985 system, over 80 per cent will have been made worse off as a result of the Budget measures announced in 1993. By comparison with the 1985 system, the 1992 system left households nearly £14 per week better off on average than they would have been if the 1985 system had been retained. The loss per household as a result of the 1993 changes will be nearly £10 per week. Virtually all those in the top deciles were made better off as a result of changes between 1985 and 1993; they were virtually all made worse off by the 1993 Budgets.

The other contrast between the periods was the effect the pre-1993 changes had in making the after-tax income distribution much less equal. Looking at the changes as a percentage of income, one sees the contrast between the losses and small gains in the bottom few deciles and the very large gains in the higher deciles, reaching 9.5 per cent of net income in the richest group. By contrast, the

---

[14] For the purposes of these tables, we ignore the effect of the poll tax and treat the 1992 system as though the council tax were in place.

TABLE 5

Impact of Tax Changes, 1985–92, by Decile Group

Decile	Percentage losing	Percentage gaining	Average gain (£ per week)	Average gain (% of net income)
1	39	6	−0.8	−0.7
2	19	10	−0.2	−0.2
3	20	37	1.2	1.0
4	12	72	5.0	3.4
5	5	89	9.6	5.2
6	3	95	13.3	5.9
7	2	96	16.3	6.5
8	1	98	19.5	6.5
9	1	98	23.0	6.5
10	1	99	51.7	9.5
All	10	70	13.9	6.0

TABLE 6

Impact of Tax Changes, 1993–95, by Decile Group

Decile	Percentage losing	Percentage gaining	Average gain (£ per week)	Average gain (% of net income)
1	60	6	−2.1	−2.0
2	38	10	−1.2	−1.1
3	57	7	−2.9	−2.4
4	79	4	−6.0	−3.9
5	91	1	−8.8	−4.5
6	94	1	−11.5	−4.8
7	98	0	−13.0	−4.9
8	98	0	−14.9	−4.7
9	98	0	−16.5	−4.4
10	98	0	−20.2	−3.4
All	81	3	−9.7	−3.9

1993 Budgets have actually hit the bottom deciles less hard than the middle and higher deciles in terms of the losses imposed as a proportion of their income, despite the undoubtedly regressive effect of the imposition of VAT on domestic fuel. This reflects the income tax and NI increases also imposed.

The fact that losses as a percentage of income peak in the seventh decile, however, reflects the fact that the NI and income tax increases were not as progressive as they might have been. The drop in losses at the top decile especially reflects the fact that most changes have been effectively lump-sum above a certain income. All those with earnings above the upper earnings limit (UEL) for NI contributions will have lost the same amount in cash terms from the increase in NICs, just as all those with mortgages over £30,000 will have lost the same amount irrespective of their incomes. The imposition of VAT on fuel will have hit the lower middle deciles hardest, as they will not have gained from the compensation package but spend a higher proportion of their income on fuel than do the higher deciles.

IV. PROGRESSIVITY OF THE TAX SYSTEM

There is a considerable literature on methods of measuring the progressivity of the tax system, including measures of the divergence from proportionality of the tax system and measures of the degree to which the tax system reduces inequality. Here we illustrate the degree of progressivity in the UK system using a straightforward numerical approach showing the proportions of the income of each income decile taken by direct and indirect taxes. Secondly, we show more formally how the progressivity has changed by looking at Gini coefficients pre- and post-tax in each of the two years.

Figures 4, 5 and 6 show the proportions of income of each decile taken in direct, indirect and all taxes respectively in the 1985 and 1995 tax systems. Households are sorted by *equivalent gross income* (i.e. income before tax and equivalised to take account of household size) for placement in deciles. The proportion of tax taken, as shown by the bars, is the ratio of total taxes to gross income in each decile. The line on each graph shows how this proportion changed between the 1985 and 1995 systems. In all cases, the taxes are calculated by the tax and benefit model for each system — they are not taxes as recorded in the FES.

From Figure 4, the progressive nature of the direct tax system is evident. The proportion of income taken rises steeply by decile from 7 per cent in the bottom decile to 30 per cent in the top decile (under the 1995 system). This largely reflects the impact of personal tax allowances which mean that most of those in the bottom deciles pay no direct tax at all and that the average rate increases as income rises further up the scale. Direct tax cuts since 1985 are indicated by the fact that each of the darker (1995) bars is below the corresponding bar for 1985. The fact that the line underneath, indicating the change in the direct tax burden,

is sloping downwards shows that the direct tax changes went in a regressive direction — they reduced the proportion of the incomes taken in tax of the richer deciles by more than that of the poorer deciles.

FIGURE 4

Proportions of Income Taken in Personal Direct Tax, by Decile
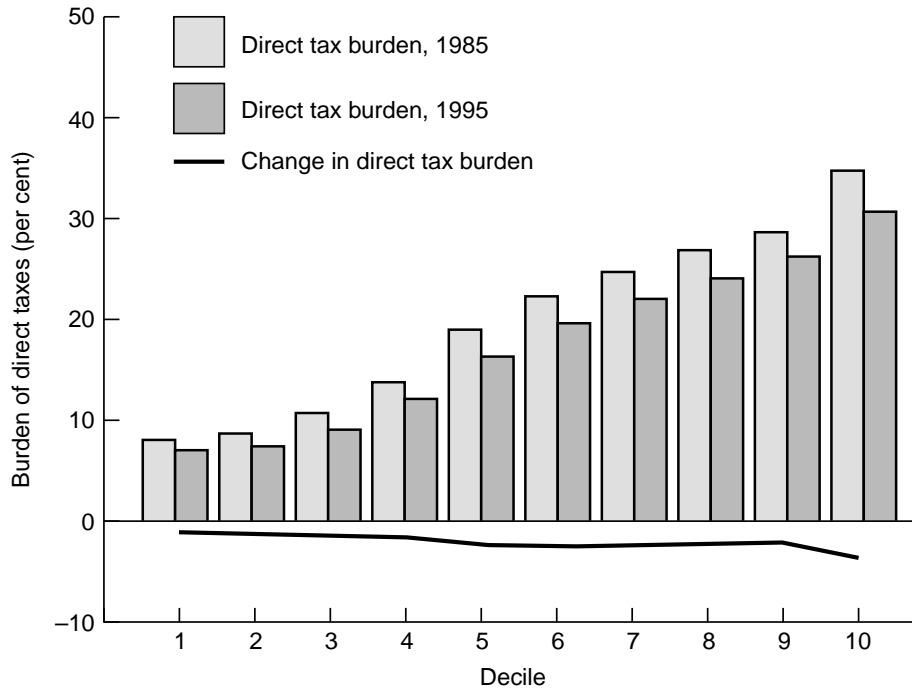
The biggest gap between deciles is between the ninth and top deciles, and the largest tax reduction was enjoyed by the top decile, whose direct tax burden fell from about 34¼ per cent to about 30½ per cent. The numbers for the top decile are in fact heavily affected by the very richest households in that decile — the top 1 per cent of the income distribution.[15] The top percentile's direct tax burden fell from 46.2 per cent to 36.2 per cent over the period — a drop of 10 percentage points. Both the total burden and the change are much bigger for this small number of the very richest households than for even the rest of the households in the top decile. For here are the people whose incomes are high enough for them to have benefited in full from the cutting of the very highest rate

---

[15] It is not generally possible to use the FES by itself to look at the top 1 per cent of the income distribution because of sampling problems. However, we have supplemented the data by using information from the Inland Revenue Survey of Personal Incomes to give us an accurate indication of both the number of people with very high incomes and the levels of those incomes.

of income tax from 60 per cent to 40 per cent. The very high average tax rate and large gains for this group indicate more than anything else the very high levels of income that they enjoy by comparison with the rest of the population. The very richest are quite different from the quite rich.

FIGURE 5

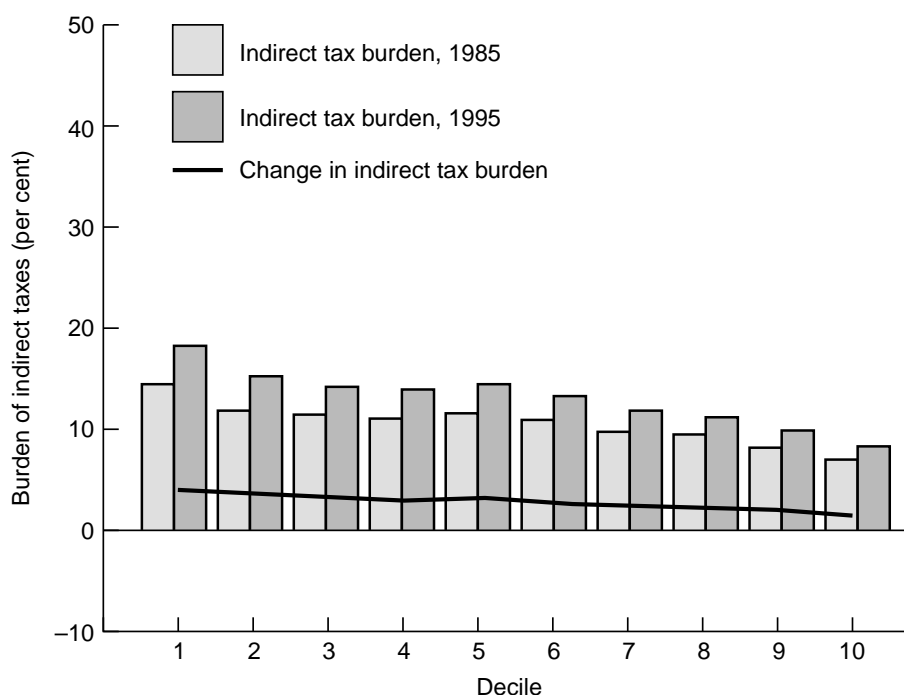**Proportions of Income Taken in Personal Indirect Tax, by Decile**

Figure 5 shows the same information as Figure 4 but for indirect taxes. Here we see both the lower levels of indirect taxes and their relative regressivity. In 1995, the poorest decile[16] will see nearly 20 per cent of their gross income taken in indirect taxes, as against 8 per cent taken from the richest decile.[17] This relative regressivity results from both the high expenditures on excisable goods at the bottom of the income distribution and the higher incidence of saving higher up the distribution.

---

[16] Actually percentiles 2 to 10. The bottom percentile biases the results considerably because in the data there appear to be a number of households which have extremely low, even zero, incomes and very high expenditures.

[17] Note, firstly, that, as explained earlier, we underestimate the burden of indirect taxes and, secondly, that we take no account of saving here. The more somebody saves, the lower their indirect tax burden will be in this period, but assuming that they eventually use their savings to buy goods and services, they will eventually pay some indirect tax.

The 1995 tax system imposes a greater burden of indirect taxation in every decile, but by considerably more (as a proportion of income) in the poorer deciles than in the richer ones. This increased regressivity is again illustrated by the slope of the line indicating the change in the indirect tax burden. It increased by 4 per cent of income at the bottom of the income distribution and by about 1.5 per cent at the top.

FIGURE 6

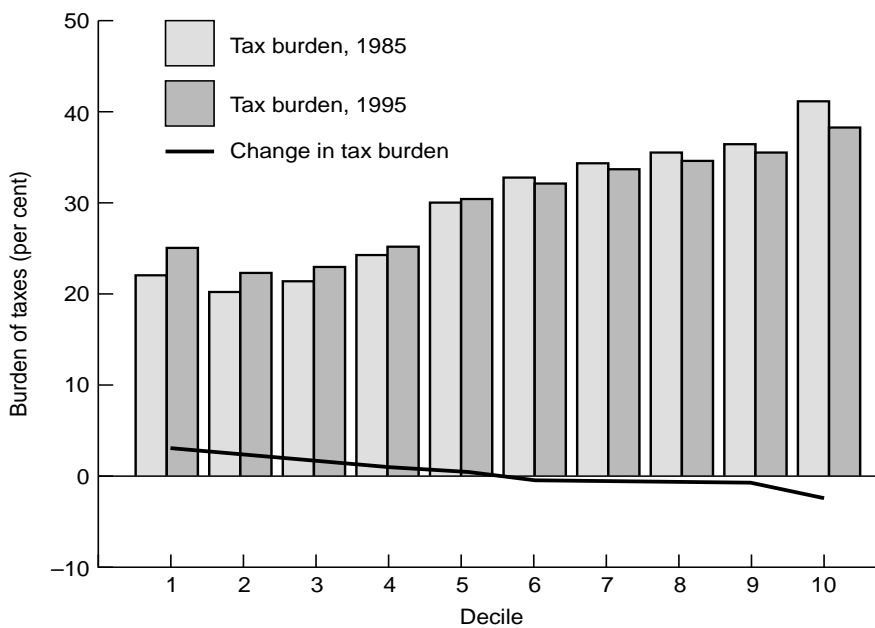**Proportions of Income Taken in Personal Tax, by Decile**

Figure 6 simply combines the information contained in Figures 4 and 5 to show the burden of direct and indirect taxes together. It shows that, from the second decile onwards, the progressivity of the direct tax system overcomes the regressivity of the indirect tax system. In 1995, the second decile will be paying just over 22 per cent of their income in taxes, the ninth decile will be paying 35 per cent and the top decile 38 per cent. The poorest decile[18] see over 25 per cent of their gross income taken in taxes. Again, the line describing the overall changes in the tax burden by decile slopes down from left to right. The tax burden has gone up in the bottom deciles and down in the top ones, especially the very highest decile. This simply reflects the findings of gains and losses shown in Table 3.

---

[18] Again, actually percentiles 2 to 10.

Gini and Lorenz Changes

Figure 7 shows the pre-tax Lorenz curve and the two post-tax curves for the 1985 and the 1995 tax systems. A Lorenz curve plots the proportions of the population, from the poorest upwards, against the shares of income that they hold. Obviously, if income were distributed equally, each 1 per cent of the population would hold 1 per cent of the income and the curve would be a straight line from bottom left to top right. The further the distribution deviates from equality, the further from the line of equality lies the Lorenz curve.

FIGURE 7

Lorenz Curves
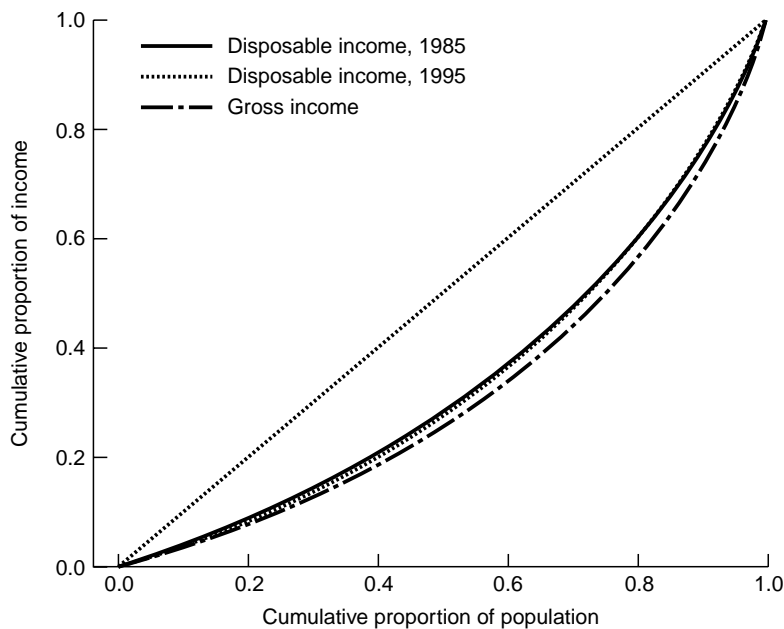
The outermost Lorenz curve in Figure 7 plots the pre-tax income distribution. The inner ones plot the post-tax distributions in 1985 and 1995.[19] The gap between the pre- and post-tax curves is a measure of the difference in inequality in each case and hence of the progressivity of the tax system. Although it is not clear from the figure, the post-tax Lorenz curve for 1995 (the dotted line) lies entirely outside that for 1985. In other words, the tax changes since 1985 have unambiguously increased inequality. Given that the one curve lies entirely

---

[19] All the curves, and the Gini coefficients which follow, are, like the rest of the analysis, based on grossed-up data and represent the population as a whole; they are not simply measures of the inequality evident in the raw data.

outside the other, one can go so far as to say that on any standard measure of inequality, the tax changes since 1985 have increased inequality.

A simple numerical measure of the degree of inequality manifested by the Lorenz curves is the Gini coefficient. This measures twice the ratio of the area between the curve and the diagonal to that of the whole box within which they lie. Thus the higher the Gini coefficient, the greater the degree of inequality. Table 7 shows the Gini coefficients for pre-tax equivalent income and for post-tax equivalent income under the 1985 and the 1995 tax regimes.

The 1985 tax system reduced the Gini by 0.0468, or 12.6 per cent. The 1995 system reduced it by 0.0338, or 9.1 per cent. These changes give one measure of the reduction in progressivity introduced by the tax changes.[20]

TABLE 7

**Gini Coefficients Pre-Tax and
After 1985 and 1995 Tax Systems**

	Gini
Pre-tax	0.3700
After 1985 tax system	0.3232
After 1995 tax system	0.3362

V. CONCLUSIONS

The UK tax system has been substantially reformed since 1985: structures and rates of tax have changed, and there has been a shift away from direct taxation and towards indirect taxation. All of this has led to a big change in the way the tax system affects individuals.

We have shown that the effects of all the changes together have been diverse. Although there have been gains overall, these have been concentrated on those with high incomes while those at the bottom of the income distribution have lost out on average. This is effectively explained by the pattern of progressivity that we have shown. Indirect taxes tend to be regressive, direct taxes progressive. The switch from direct to indirect taxes has reduced the progressivity of the tax system to the advantage of those on high incomes and at the expense of those on low incomes.

---

[20] Such measures have been proposed or used by, for example, Musgrave and Thin (1948), Pechman and Okner (1974) and Kakwani (1977). For excellent surveys of the measurement of progressivity, see Lambert (1989) or Morris and Preston (1986).

REFERENCES

Central Statistical Office (1993), 'Effects of taxes and benefits upon household income 1991', *Economic Trends*, May, no. 475, pp. 92–128.

Davies, J. and Rajah, N. (1992), 'A hedonic price index for housing', mimeo, Institute for Fiscal Studies.

Department of Social Security (1993), *Households Below Average Income*, London: HMSO.

Dilnot, A., Kay, J. and Keen, M. (1990), 'Allocating taxes to households', *Oxford Economic Papers*, vol. 42, pp. 210–30.

— and Webb, S. (1988), 'The 1988 social security reforms', *Fiscal Studies*, vol. 9, no. 3, pp. 26–53.

— and — (1989), 'Reforming National Insurance contributions: a progress report', *Fiscal Studies*, vol. 10, no. 2, pp. 38–48.

Giles, C. and Ridge, M. (1993), 'The impact on households of the 1993 Budget and the council tax', *Fiscal Studies*, vol. 14, no. 3, pp. 1–21.

Johnson, P. and Stark, G. (1989), 'Ten years of Mrs Thatcher: the distributional consequences', *Fiscal Studies*, vol. 10, no. 2, pp. 29–38.

—, — and Webb, S. (1990), 'TAXBEN2: the new IFS tax and benefit model', Institute for Fiscal Studies, Working Paper no. W90/5.

Kakwani, N. C. (1977), 'Applications of Lorenz curves in economic analysis', *Econometrica*, vol. 45, pp. 719–27.

Lambert, P. (1989), *The Distribution and Redistribution of Income*, Oxford: Basil Blackwell.

McClements, L. D. (1977), 'Equivalence scales for children', *Journal of Public Economics*, vol. 8, pp. 191–210.

Morris, C. N. and Preston, I. (1986), 'Inequality, poverty and the redistribution of income', *Bulletin of Economic Research*, vol. 38, pp. 277–344.

Musgrave, R. and Thin, T. (1948), 'Income tax progression, 1929–48', *Journal of Political Economy*, vol. 56, pp. 498–514.

Pechman, J. and Okner, B. (1974), *Who Bears the Tax Burden?*, Washington DC: Brookings Institution.

Ridge, M. and Smith, S. (1991), *Local Taxation: The Options and the Arguments*, IFS Report Series no. 38, London: Institute for Fiscal Studies.