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Assessing the Impact of Tax Changes

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I. INTRODUCTION

When changes to taxation are proposed it is important to understand what effect they will have on people's incomes. This clearly matters to the British public – indeed it may well be that the 1992 General Election was won and lost on taxation. The quality of the information the public receive on the subject, however, is not always what it should be.

For the most part, what people want to know about the tax system is fairly basic: how much better or worse off will some change make them and, perhaps, how much better or worse off will it make the population as a whole – is the change fair? In general, public interest in other aspects of tax policy, such as ease of administration or economic efficiency is comparatively limited. This may reflect the fact that British tax-payers are mostly shielded from the operational side of the tax system by the PAYE system. Of course, for specialists – economists, lawyers, administrators – the interest often lies in these areas.

In this short article we want to discuss some of the things that most commonly seem to go wrong in the popular debate about tax, especially as it is presented in the newspapers and on television.

We will be talking primarily about the cash gains and losses from some concrete set of proposals, on whose meaning everyone agrees. One of the remarkable features of the 1992 election was that for the first time the two main parties made quite specific proposals on taxes and benefits. On the face of it this should leave no room for argument, but it is surprising how differently an apparently concrete set of proposals can be interpreted and presented.

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1. Compared to What?

Some new proposal is claimed to make, say, 70 per cent of families better off. The first question to be asked is: 'compared to what?'. This is rarely as obvious as it sounds.

In the first place, proposals take time to implement, possibly years for structural reforms, but in any case several months. By that time the system in place may well have changed, either through reform or simply through adjustment for inflation. So for any proposal, at least three comparisons can usually be made: with the system as it is today, with an indexed version and with any rival proposals.

The effects of inflation are often ignored, especially at budget time. The Chancellor nowadays almost always adjusts income tax allowances for inflation in his Budget, but these adjustments are often presented as giving real gains. Here is an example: in the 1991 Budget mortgage interest tax relief was restricted to the basic rate. Higher rate tax-payers who previously received tax relief on mortgage payments at 40 per cent saw this reduced to 25 per cent. To lessen the blow the basic rate limit, the point at which higher rate income tax becomes payable, was raised by 5 per cent more than inflation. The Chancellor claimed that 'the typical increase in liability for a higher rate tax-payer with a £30,000 mortgage will be only £1 per week'. In nominal terms this was true, given the effect of inflation on allowances and on the basic rate limit. But the effect on real (inflation adjusted) incomes was far more substantial, nearer £10 per week.

A related problem concerns *transitional protection* – payments made to ensure that there are no immediate cash losses from a reform. The 1988 'Fowler reforms' to means-tested benefits and the introduction of independent taxation in 1990 both relied on this. Generally, transitional protection exhausts itself after a couple of years, usually through non-indexation or because new claimants or tax-payers are not entitled.

These issues are particularly acute when more than one set of reforms is being proposed, as for example at the April 1992 General Election. The election was called within a couple of days of the Budget, so the changes announced were therefore not yet in place. The Labour Party then made a number of proposals, the effects of which could then, quite legitimately, be compared with three separate base systems – either

(1) that which was currently in place; or
(2) the system which would have existed if all the government had done was to index duties and allowances in line with inflation; or
(3) with the proposals put forward by the Chancellor in his Budget.

This is in part why there were so many conflicting claims about the gains and losses from Labour's proposals.

II. THE TYPICAL BRITISH FAMILY

There are many things one might want to know about some proposed change: how many gain and lose, who these gainers and losers are, how much the proposals will cost or raise, and so on. But it is clearly impossible to list the effects of some change on each and every person, family and household in the country.

The temptation, especially in the media, is to refer to some 'typical' example families. Sometimes these are real families, sometimes invented ones.

Example families have their appeal, as most people find it easier to follow discussions when they have a concrete example in front of them. However, it is most unlikely that a few examples willgive a good idea of the overall effect of any changes. The British tax and benefit system is enormously complicated, and modern British society is very diverse. By choosing the right examples it is usually possible to prove virtually anything. In the recent, debates on the reform of local taxation, for example, 'typical' families have been used to demonstrate the superiority of rates or the Community Charge or the Council Tax or 'fair rates'. No doubt every calculation presented was correct for people in the positions stated, but the contribution to the debate and the understanding of the issues of such examples is very limited. It often seems that commentators think of an example that makes a point and then prefix it with the word 'typical', as in 'the typical couple on £40,000 p.a with two children and a £30,000 mortgage would be £45 a week worse off'.

The average British family is frequently supposed to consist of a working husband on average earnings (on which more below), with a non-working spouse and two children. In fact, single-earner couples with children (on *any* earnings) account for just 6 per cent of families in the UK and, of course, even among them there are considerable differences in income and other circumstances. Table 1, taken from the IFS Tax and Benefit Model (Johnson, Stark and Webb, 1990) shows how family types are in fact distributed.

TABLE 1
Proportions of Families of Different Types in the UK, 1991

Family type	*% of total*
Single, not in employment	9
Single employees	28
Single parents	4
Unemployed couples with no children	2
Unemployed couples with children	1
Single-earner couples with no children	3
Single-earner couples with children	6
Two-earner couples with no children	11
Two-earner couples with children	11
Single pensioners	15
Couple pensioners	8
Others	1

The best way to understand the impact of a tax (or benefit) change is to look at its effects on a representative sample of the population, and the best method of doing this is to use a tax and benefit model (see Johnson et al., 1990). This is a computer program which can calculate the tax liabilities and benefit entitlements, under a number of possible tax and benefit systems, of a representative sample of individuals. The sample used by most such models is the annual Family Expenditure (FES). This contains information on the characteristics, income and expenditures of a representative sample of around 7000 households drawn from all over the UK. By using such a model, all the possible effects of actual and proposed reforms can be captured. Many of these effects are often unexpected and would be most unlikely to have shown up in calculations based on example households.

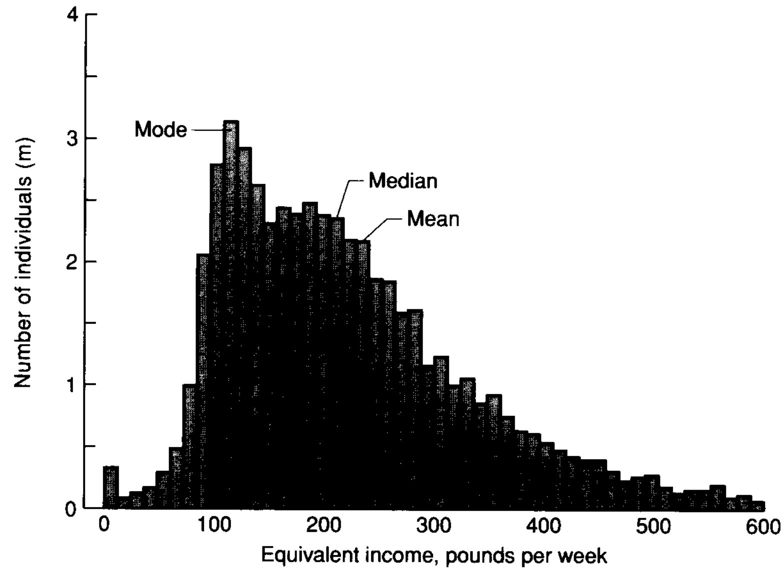
1. '... With Average Earnings ...'

In a similar way, people often think about the impact on someone with average earnings. But a family on average earnings is in fact comparatively rich, and for most purposes it is levels of all incomes rather than just earnings that are of interest. On the one hand, most workers take home less than average earnings. On the other, many families have no one earning at all, whilst others have two or more earners. Both the income and earnings distributions of western economies are highly skewed, with a few rich cases at the top, and most families or earners bunched around some relatively low level. The average (mean) is pushed up by the rich, with the most common value (mode) below this and the value of the family or earner in the middle of the distribution (median) somewhere in between.

Figure 1 shows the British income distribution in 1988–89.[1] This illustrates quite clearly that the mean income is considerably in excess of the median, and how widely spread is the income distribution. It is not surprising that a single summary figure or table can easily fail to convey much useful information. Average earnings among full-time workers are, of course, much higher than average incomes for the population as a whole. Just as with incomes, average earnings are well above median earnings. Out of an adult population of 43.5 million, only around 151.5 million are full-time employees, with a further 3 million self-employed. That leaves around 5.75 million part-time workers, 10 million pensioners, 2.8 million registered unemployed, 0.8 million students over the age of 18 in full-time education, over 1 million single parents and 2 million others including the sick, disabled and otherwise unoccupied. This indicates that full-time workers in fact make up a minority of the adult population. Since they are a generally richer group than non full-time workers it is clear enough that somebody with average earnings will in

[1] The figure shows household equivalent weekly net income before housing costs – this is the same income definition as that used by the DSS in its Households Below Average Income statistics. For a discussion see Johnson and Webb (1989). Each bar represents a £12 band.

FIGURE 1
The 1988–89 Income Distribution (in 1992 prices, equivalised)



fact have an income much further towards the top end of the income distribution than might at first be supposed.

The earnings distribution can nowadays be broken down in many ways: for example, by sex, region and by occupation or sector of the economy. By choosing the appropriate combination of these, many things may be proved. Somebody on average, male non-manual earnings in London, for example, is likely to be rather well-off, but the use of the word *average* in these immediately gives the impression that we are considering a typical or normal individual.

In April 1991 average (mean) gross weekly earnings of non-manual males in Greater London were £465.50 per week. For the same group median earnings were £388 per week. Mean earnings for all full-time male workers in London were £409 and median earnings £340. Countrywide male earnings were considerably less with a median of £278 while female earnings were much lower still.

For the population as a whole, gross individual mean income was just £180 per week, considerably less than half average male earnings. The median is smaller still at £125 p.w. These figures are all shown in Table 2.

A good example of the confusion between incomes and earnings arises from the debate over the introduction of a national minimum wage. It was frequently stated that its introduction would help those on the lowest incomes, or that it would be a major aspect of an attack on poverty. Of course, those on the lowest incomes and in the worst poverty do not generally have any earnings.

TABLE 2
Measures of Average Earnings and Incomes

	Gross earnings	
(a)	Full-time males	
	(i) London	
	non-manual	
	mean	466
	median	388
	all	
	mean	409
	median	340
(ii)	Great Britain	
	mean	319
	median	278
(b)	Full-time females	
	mean	222
	median	196
(c)	All adults (gross income)	
	mean	180
	median	125

Notes: Earnings are from 1991 *New Earnings Survey*; Income is current gross personal income, from the 1991 *Family Expenditure Survey* micro data.

III. RAISING AND CUTTING REVENUE

A proposed change may be *revenue neutral*, or else it will either give away or raise net revenue. Two important points should be made.

Tax increases are usually proposed for a purpose, such as increasing public expenditure or reducing debt. However, unless increased expenditure goes directly on raising social security benefits, it is very difficult to say who has benefited from it and by how much. A 1 per cent increase in the income tax rate would simply be shown as making all tax-payers worse off, even if the money raised were directed straight toward increased expenditure on, for example, health or education, which would clearly leave some people better off. Thus looking just at tax changes often tells only half the story. A similar problem exists when changes to taxes such as corporation tax, which do not directly impact upon individuals, are made. It is very hard to see who pays these taxes in the end, but in the end *all* taxes are borne by individuals.

The second point is a simple presentational one. A net gain in revenue to the

Exchequer is often expressed as an *average loss* to each family; this is simply the gain to the government divided by the number of families (or households, or individuals). This is fair enough; indeed it is probably the use of Tax–Benefit models which has popularised this measure.

However it is necessary to be careful here: the average loss is *not* the loss to the average family (whoever they are), or to someone on average earnings or income, and it is not an indicator that most or even many people would stand to lose. For example, if you took £100 million from the Queen, and gave £1 to everybody else in the country, this would be represented as an average £1 loss per person because there would be a net increase in revenue to the government flowing from the personal sector.

IV. INDIVIDUALS, FAMILIES AND HOUSEHOLDS

Most incomes, and all earnings, accrue to individuals. But married couples tend to share incomes, particularly where only one is working. Children of course are supported by their parents. Even in households containing more than one family unit there is likely to be at least some sharing of income. The results of proposals can look very different, depending on whether they are presented for individuals, families or households.

The tax and benefit system takes account of other family or household members in a somewhat haphazard fashion. Income tax used to be a tax on family income until the introduction of independent taxation in 1990. It is now a tax on individual income but an extra allowance, the married couple's allowance, remains for married couples. National Insurance contributions (NICs) are paid on an entirely individual basis, while NI benefits offer additions in respect of spouses, though generally only if the spouse's earnings are low enough. Means-tested benefits take account of the income of the whole family in calculating entitlements and one, housing benefit, takes account of other household members as well through the system of non-dependent deductions.

The interaction of these different taxes and benefits, levied on different types of income unit, with changes to these systems can have unwanted and little understood effects. One obvious example was the proposal to abolish the upper earnings limit for National Insurance contributions. This is the point above which extra NICs cease to be payable and stands at £21,840 in 1993–94. Clearly all those individuals who would lose from this change have relatively high incomes and indeed earnings. But it would be quite possible for such an individual to be a member of a family which is not especially well off. If, for example, the individual over the UEL had a non-working spouse and two children, the family's equivalent income could be quite low. For example, someone earning £25,000 per year might appear very well-off and would be hit by the abolition of the NI UEL. But if he had a non-working spouse and two children aged 12 and 15, the family income would only be equivalent to that of a single person with less than £10,000. (This makes use of the equivalence scales used by the DSS to compare people's living standards.) Hence a policy which looks well targeted at relatively well off individuals may have detrimental effects on the incomes of families who are considerably less well-off.

V. THE TAX BURDEN

Over longer periods of time there is often dispute over what is loosely known as the 'tax burden': total tax revenue as a proportion of GDP. This itself would appear to be a relatively uncontroversial definition, but the tax burden is also used to refer to direct taxes only, and to the burden on families at particular points in the income distribution, or with a particular level of real income.

A number of confusions may arise. First of all it is quite possible for the amount of tax levied in real (price indexed) terms to rise while the overall tax burden falls. This will happen when GDP rises faster than prices (as it generally does, other than in recessions) while tax revenues rise less quickly than GDP. Conversely, because the overall nature of the UK tax system is progressive, if incomes go up tax revenues will go up even faster, and hence the tax burden will increase. So it is quite feasible for tax rates to fall and the tax burden to rise.

Consider this with respect to a single person and to income tax only. Suppose she earns £15,000 per year now and pays £2788.75 per year in income tax at 1992–93 rates. If she shares in national average real earnings growth of 3 per cent per year for 5 years her earnings will have risen to £17,389 and her tax payments to £3386. In the first period her tax payments will have accounted for 18.6 per cent of her gross earnings; in the second period for 19.5 per cent. Hence the burden of income tax on this individual will have increased by nearly 5 per cent without any change in the tax system.

This effect can cause immense confusion when comparing the tax burden on particular families over time. A married couple on average earnings was paying as high a proportion of their earnings in direct taxes in 1990–91 as a married couple on average earnings in 1978–79. But, of course, somebody with the same real earnings (relative to prices) in 1990–91 as in 1978–79 would be paying a far smaller proportion of their income in direct taxes in the latter year.

1. A Simple Illustration

To illustrate a number of the points made above, we look here at a very simple example of a possible reform to the tax system and at the way in which its effects might be reported.

Suppose that, with inflation at 5 per cent, the government increased income tax allowances and thresholds to take account of inflation. Suppose, further, that a real reform is instituted. The basic rate of income tax is raised by 1p and the real level of tax allowances are raised by 5 per cent (i.e. 10 per cent in nominal terms). Everything else is unchanged. Broadly speaking, the effect of this is to shift the tax burden towards the rich, since most tax-payers gain equally from the allowance increases, although, of course, higher rate tax-payers gain more, whilst the basic rate increase affects richer tax-payers more.

This is a very simple reform indeed, simpler than any recent Budget and far simpler than anything likely to be in a manifesto. But it is enough to illustrate almost all the points made above. The figures we give below are for average gains and losses and gains and losses among groups of the population come from running a simulation of this reform on the IFS Tax–Benefit Model using the 1992–93 tax and benefit system as a base.

The first question refers to the basis of comparison. Because the change includes an element which accounts purely for inflation, any description of its effects which takes no account of this will be misleading. Looking just at average gains/losses for now, comparing the reformed system with a non-indexed base system shows average weekly gains of around £1.10 per benefit unit. This is not surprising given the 10 per cent nominal increase in allowances. Hence those responsible for the change might say that, despite the increase in the basic rate, overall the reform represented a cut in taxes.

But, because part of the actual changes were made purely as a response to inflation, one ought really to look just at the real changes and compare the reformed system with an uprated base system. That is, the reformed system should be compared with one already adjusted for inflation. If one does this then the reform can be seen actually to represent an increase in taxation as benefit units suffer an average loss of 14p per week.

This brings us on to our next problem. The average loss is 14p per week. Hence opponents of the change will be inclined to say that the average family has lost from the change. They may back up this assertion by showing that a 'typical' married man on average male earnings with a £30,000 mortgage and a non-working spouse (with or without 2.4 children) would lose from the change in real terms – which indeed he would, but only to the tune of about 20 pence per week. If they were a little more careful in their selection of example they might pick a single man on average male earnings without a mortgage who would be losing over £1.80 per week.

Those responsible for the reform could themselves readily come up with examples of people gaining from the reform. But more effectively they could say that while there is an overall average loss for families, it remains the case that more families gain than lose (35 per cent against 29 per cent). This is a direct result of the point made above about most people having incomes below average earnings, and most tax-payers with incomes below average earnings will have gained from the changes. A substantial group – non tax-payers – will not have been affected at all, of course. The debate can become even more confused if each side starts quoting numbers losing or not affected, or gaining or not affected, then each will appear to have a majority.

So far then, using one of the simplest possible reforms as an example, we have a situation in which there are average gains against a non-indexed base, and average losses by comparison withan indexed base, and while there are average losses in the latter case and some people on average earnings lose, others gain and there are more people gaining than losing.

In this case the unit of comparison is relatively unimportant. While 35 per cent of benefit units gain and 29 per cent lose, the corresponding figures for households are 36 per cent and 32 per cent. Households lose 18p per week, as against 14p lost by benefit units, since households, being bigger, are more likely to contain an affected individual than are benefit units. Nonetheless there is some scope for dispute here too: for example, 65 per cent of single-earner householders lose from the change, as against 45 per cent of single-earner tax units. This is simply because poorer single employees often choose to live as non-householders – with their parents, for instance.

The fact that we are mostly interested in benefit units or households, whilst income tax is raised on individuals, can cause some anomalies. While the reformers can point out quite properly that only those on relatively high incomes will lose from the change, their opponents can point out that relatively poor families or households might lose, in particular those with a single earner and other non-earning adults and children. Although the tax–benefit model shows most of the losers in the richer deciles of household and benefit unit equivalent incomes, there are some as low as the fourth decile.

Finally, the average overall loss imposed by this tax change indicates that the government is raising more money, and none of our discussion so far has taken any account of this. The extra money raised may be used for any number of things, and a large proportion of those possible expenditures would confer direct or indirect benefits on at least some individuals in the population. This discussion, as with many concerned with tax changes, has ignored any such effects altogether.

VI. CONCLUSION

When politicians or newspapers make claims about the effects of a change in the tax system, these are the first questions that should be asked before a useful assessment of the claims can be made:

- What, exactly, are they comparing?
- In particular, how do they allow for inflation?
- Do they make selective use of examples?
- What is happening to any extra revenue?
- How often does the word 'average' appear, and what does it refer to?

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