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**Increased Income Inequality in
OECD Countries and the
Redistributive Impact of the
Government Budget**

Anthony B. Atkinson

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October 2000

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Development Economics Research
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ABSTRACT

The recent rise in inequality in the distribution of disposable income in many, although not all, countries has led to a search for explanations, particularly since for much of the postwar period falling inequality has been the norm. In OECD countries, the cause has typically been identified as rising wage dispersion, coupled with persistent unemployment in Europe, but changes in the government budget can also be important. This paper is concerned with the role of the government budget, particularly taxes and transfers, in explaining the evolution of the distribution of disposable income. Do differences in welfare states across countries explain the differing evolution of the final (post-transfer, post-tax) distribution? Have active policy changes contributed to offsetting rising market inequality, or have they engendered rising final inequality? To the extent that changes in demographic structure, such as the ageing of the population, have intensified budgetary pressures, have governments been forced to cut back on the generosity of their welfare states?

The first section of the paper reviews the statistical evidence available from official and other sources about the redistributive impact of the government budget, taking five OECD countries where there is a time-series of studies covering the 1980s and the 1990s. These findings need to be interpreted in the light of an analytical framework, and this is the subject of the second section. I set out a simple framework within which we can explore the distributional implications of different responses to changes in economic conditions and the different elements – on both supply and demand sides – influencing the choice of response. The actual policy changes observed in the five European countries and the United States are summarized in the third section, where I take unemployment benefits and personal income taxation as two case studies. What changes have been made in policy structures and parameters over the 1980s and 1990s? What (if anything) was said in advance about their likely redistributive impact? What can be concluded about the actual impact?

INTRODUCTION

The recent rise in inequality in the distribution of disposable income in many, although not all, countries has led to a search for explanations, particularly since falling inequality has been the norm for much of the postwar period. In OECD countries, on which I concentrate here, the cause of the recent rise has been identified as rising wage dispersion, coupled with persistent unemployment in Europe. Indeed the distribution of income is often treated as synonymous with the distribution of earnings. However, a number of factors need to be brought into any explanation of the extent and timing of changes in the income distribution (Atkinson, 1997 and 2000), including movements in factor shares, changes in real interest rates, and the impact of the government budget. The last of these is the element on which I focus in this paper. It is of particular importance given the emphasis placed on the budgetary pressures which have been generated by demographic and other shifts increasing dependency ratios. What is the role of the government budget, particularly taxes and transfers, in explaining the evolution of the distribution of disposable income? Do differences in welfare states across countries explain the differing evolution of the final (post-transfer post-tax) distribution? Have active policy changes contributed to offsetting rising market inequality or have they engendered rising final inequality? To the extent that changes in demographic structure, such as the ageing of the population, have intensified budgetary pressures, have governments been forced to cut back on the generosity of their welfare states?

The first section of the paper reviews the statistical evidence available from official and other sources about the redistributive impact of the government budget, taking five OECD countries where there are time-series of studies covering the 1980s and the 1990s. These studies are not comparable across countries, differing in their coverage, but the contrasts across countries are highly suggestive. As already noted by Fritzell (1993), the equalizing effect of welfare state redistribution did not decrease in all countries. At the same time, these findings need to be interpreted in the light of an analytical framework, and this is the subject of Section 2. To this end, I set out a simple theoretical model within which we can explore the distributional implications of different responses to changes in economic conditions and the different elements—on both supply and demand sides—influencing the choice of response. Can we separate the effects of automatic policy responses from active policy changes? What is the benchmark by which we should judge cutbacks in social protection? How do different formulae for sharing the burden of adjustment to external shocks affect the distribution of disposable income? The actual

policy changes observed in the five European countries and the United States are summarized in Section 3, where I take unemployment benefits and personal income taxation as two case studies. What changes have been made in policy structures and parameters over the 1980s and 1990s? What (if anything) was said in advance about their likely redistributive impact? What can be concluded about the actual impact? The final part of the paper summarizes the main conclusions, both analytical and empirical.

I REDISTRIBUTIVE IMPACT OF THE GOVERNMENT BUDGET IN SELECTED OECD COUNTRIES

The distribution of the tax burden, and of the benefits from government spending, have long been an important subject in public finance. One of the landmark studies of the tax burden in the United States is that by Musgrave, Carroll, Cook and Frane (1951), later followed by Musgrave, Case and Leonard (1974). The latter year saw also the publication of the celebrated *Who Bears the Tax Burden?* by Pechman and Okner (1974), to which Pechman published sequels (1985 and 1990). For 1980, using a range of incidence assumptions, Pechman found that

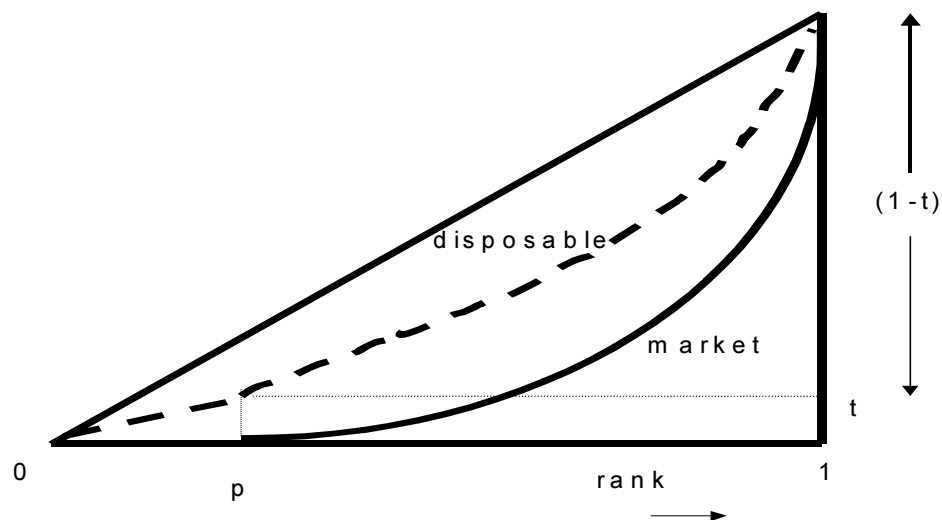
'Because the degree of progressivity or regressivity is relatively small under any of the incidence assumptions, it is clear that the tax system has very little effect on the distribution of income. However, the system of transfer payments is highly progressive and has a major effect on the income distribution.' (Pechman, 1985: 4-5).

In other countries, too, it has been found that taxes as a whole have relatively little redistributive impact, and that it is transfers which make the government budget significantly progressive. In the United Kingdom, official statistics published annually in *Economic Trends* (for example, Office for National Statistics, 1998) indicate that the addition of cash benefits to market income reduces recorded inequality substantially, but that taxes have only a modest effect, the reduction in overall inequality associated with direct taxation being offset by the indirect taxes.

The overall impact of the government budget depends on the combined effects of taxes and expenditure. A progressive transfer system financed by a proportional tax is progressive overall; and personal taxation may dampen down disequalizing changes in the market distribution, even where the tax

system is purely proportional. A simple example may help set the scene for the following analysis. Suppose that there is a group, making up a proportion, p , of the population, who have zero market income, referred to for convenience as 'pensioners'. They receive a state transfer, b , financed by a proportional tax at rate, t , on the income of the rest, $1-p$, of the population. The transfer is revenue-neutral in the sense that the sum of market incomes is equal to the sum of post-tax, post-transfer 'net' incomes. The Lorenz curves for market incomes (solid line) and net incomes (dashed line) are drawn in Figure 1. Suppose now that there is an increase in inequality in the market incomes of the non-pensioner population, leaving the mean unaffected, so that the same tax rate finances the same state transfer. A given increase in the Gini coefficient for market income translates into an increase in the inequality of disposable income of only $(1-t)$ as much. In terms of Figure 1, the outward shift in the dashed line is scaled down by the factor $(1-t)$.

FIGURE 1
PENSIONER-WORKER EXAMPLE: MARKET INCOME AND NET INCOME



Source: author.

1.1 Observed changes in the 1980s and 1990s

It is the changes over time that are my concern here. In Figures 2-6 are assembled estimates of the overall degree of inequality (measured by the Gini coefficient) before and after redistribution for five selected OECD countries.

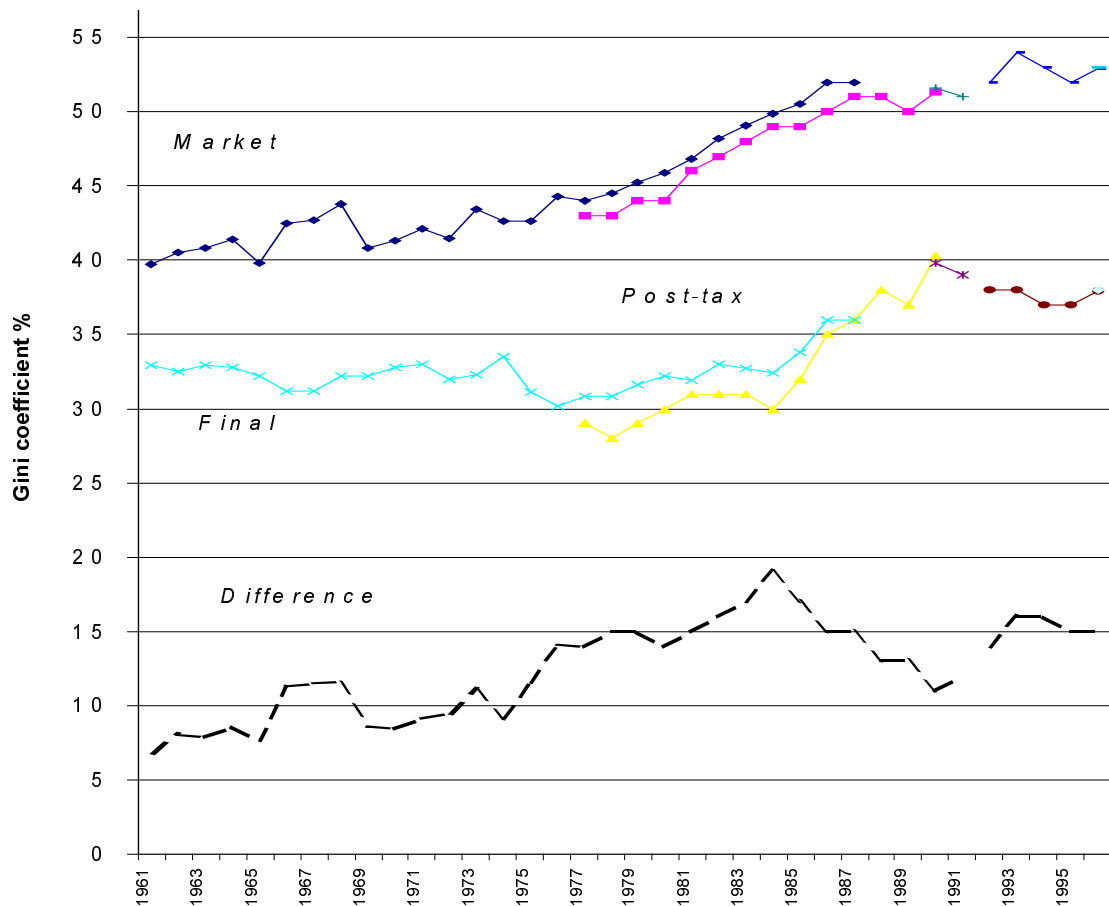
The selection is determined by the availability of a long time-series of estimates of the redistributive impact of the government budget, but the countries have in common a rise in the inequality of market incomes between 1980 and the mid-1990s. In Canada and in West Germany, the Gini coefficient for market income increased by some 5 percentage points; in the United Kingdom by around 7 points; in Sweden by 10 percentage points; and in Finland (from 1981) by more than 10 points. Reference is also made to the United States, where there has also been a significant rise in market income inequality (Gottschalk and Smeeding, 1997, Table 4). These six countries include the five studied by Fritzell (1993) in his comparison of market and disposable income inequality; the results here differ from his in being based on annual series, rather than 2 data-points, and in extending to the 1990s.

The series go back to the 1970s (Sweden and Canada) or the 1960s (Finland, West Germany and the UK). My main focus is on the 1980s and 1990s, but it is helpful to keep in perspective the longer run trends. In a number of countries the 1960s and 1970s were periods of declining inequality in disposable income. Long time-series are therefore of especial value. At the same time, the reader should bear in mind that statistics at different dates may be defined in different ways or need to be interpreted differently. Major breaks in the series are indicated, but even a consistently defined series may have a different significance as economies and societies evolve. Moreover, these studies suffer from well-known limitations: the problem of determining the incidence of taxes and transfers, the shortcomings of a snapshot picture (not allowing for redistribution over the life cycle), and the need to allow for other dimensions of redistribution (such as that by gender). These caveats should be borne in mind when considering the evidence presented below.

1.2 United Kingdom

The *Economic Trends* estimates for the United Kingdom, shown in Figure 2, are built up from calculations for each household in a sample survey. Households have incomes from market sources (earnings, self-employment income, rent, dividends, interest, and private transfers). Arithmetically, we add cash benefits and subtract direct taxes to arrive at disposable income. If we further subtract indirect taxes, this gives post-tax income (shown from 1977 in Figure 2). Finally, the official estimates add benefits from

FIGURE 2
IMPACT OF THE GOVERNMENT BUDGET ON INCOME INEQUALITY IN THE
UNITED KINGDOM 1961-96



Source: First series (from 1961) distribution (not equivalized) among households of original income and final income. Sources: 1961-1975 from Royal Commission on the Distribution of Income and Wealth, 1977, pages 247 and 251; 1976- from *Economic Trends*, January 1982, page 105 (for 1976), December 1982, page 112 (for 1977 to 1981), November 1983, page 87 (for 1982), December 1984, page 95 (for 1983), July 1986, page 103 (for 1984), July 1987, page 103 (for 1985), and May 1990 (for 1986, 1987). Second series (from 1977) distribution among households of equivalized original income and post-tax income. There are breaks in the series in 1990, 1992 and 1996/97 (although a figure is given for this year on the previous basis). Sources: *Economic Trends*, April 1998, page 58 (for 1977, 1979, 1981, 1983, 1985, 1987, 1989, 1991, 1993-94 to 1996-97), December 1994, page 65 (for 1978, 1980, 1982, 1984, 1986, 1988, 1992), and January 1993, page 159 (for 1990).

government spending on health, education and housing, and transport subsidies to give final income (shown up to 1987).¹ The results suggest that

¹ It might be expected that the Gini coefficient for final income would be less than that for post-tax income; however the two series differ also in the definition of income. The first

inequality of market income varied cyclically, but the predominant impression is of a long-run steady rise in the Gini coefficient for market income since the mid-1960s. In the 20 years from 1965 to 1984, the Gini coefficient increased from 40 per cent to 50 per cent. Even more striking is the fact that the coefficient for final income showed scarcely any rise over this period. The redistributive impact of cash transfers, other benefits, and taxation increased by enough to offset the more unequal market incomes. After 1984, the story is quite different. Inequality in market income continued to rise, but between 1984 and 1990 the Gini coefficient for post-tax income increased much more sharply. Measured in terms of the difference between the two coefficients (the dashed line), the redistributive contribution of transfers and taxes fell from 19 percentage points (the difference between the two Gini coefficients in 1984) to 11 percentage points in 1990. The reduction in redistributive impact was attributable to a smaller impact of cash transfers (minus 5 percentage points), less progressive direct taxes (minus 1 percentage point) and more regressive indirect taxes (minus 2 percentage points). (After 1990 some ground may have been recovered, but there is a break in the series.)

1.3 Canada

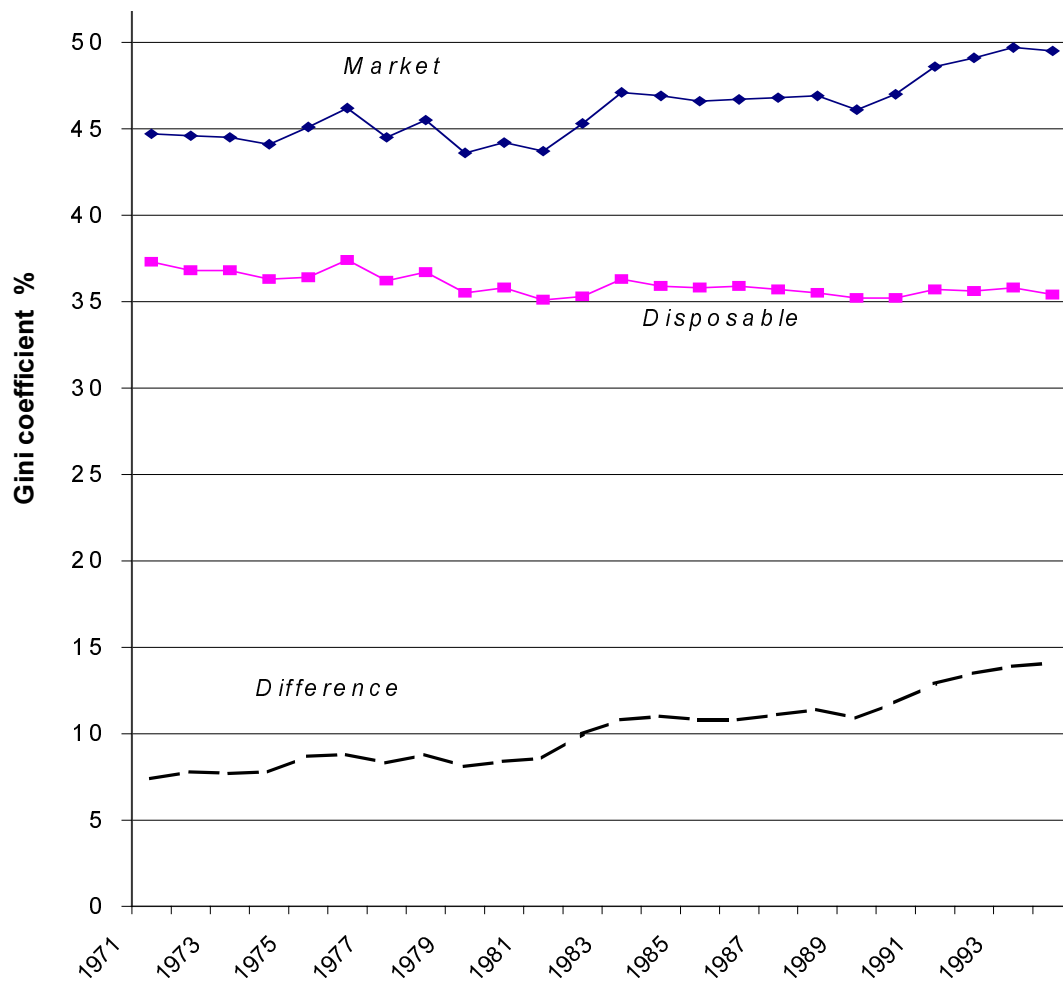
The United Kingdom experience is in sharp contrast with that of Canada shown in Figure 3. The coverage of the estimates is different, in that disposable income refers to income after direct taxes but before indirect taxes. This may affect the comparison not only of *levels* but also of *trends*. However, the difference in trends from the United Kingdom is so striking that this cannot be explained solely by definitions. As has been noted by Brandolini, in Canada

'the Gini coefficient of incomes after taxes was much the same ... over the entire period. This ... was particularly remarkable when contrasted with the dynamics of the distribution of incomes before public redistribution [which] was marked by two episodes of sharp rise of inequality' (1998: 20).

Over the period 1980-94 as a whole, the Gini coefficient for market income rose by some 5 percentage points, whereas that for disposable income in 1994 was not significantly higher than it had been 15 years earlier. The difference between the two series (dashed line) rose in line with the market income series.

(up to 1987) relates to total income, not adjusted for household size; the second (from 1977) is based on equalized household income.

FIGURE 3
IMPACT OF THE GOVERNMENT BUDGET ON INCOME INEQUALITY IN
CANADA 1971-94



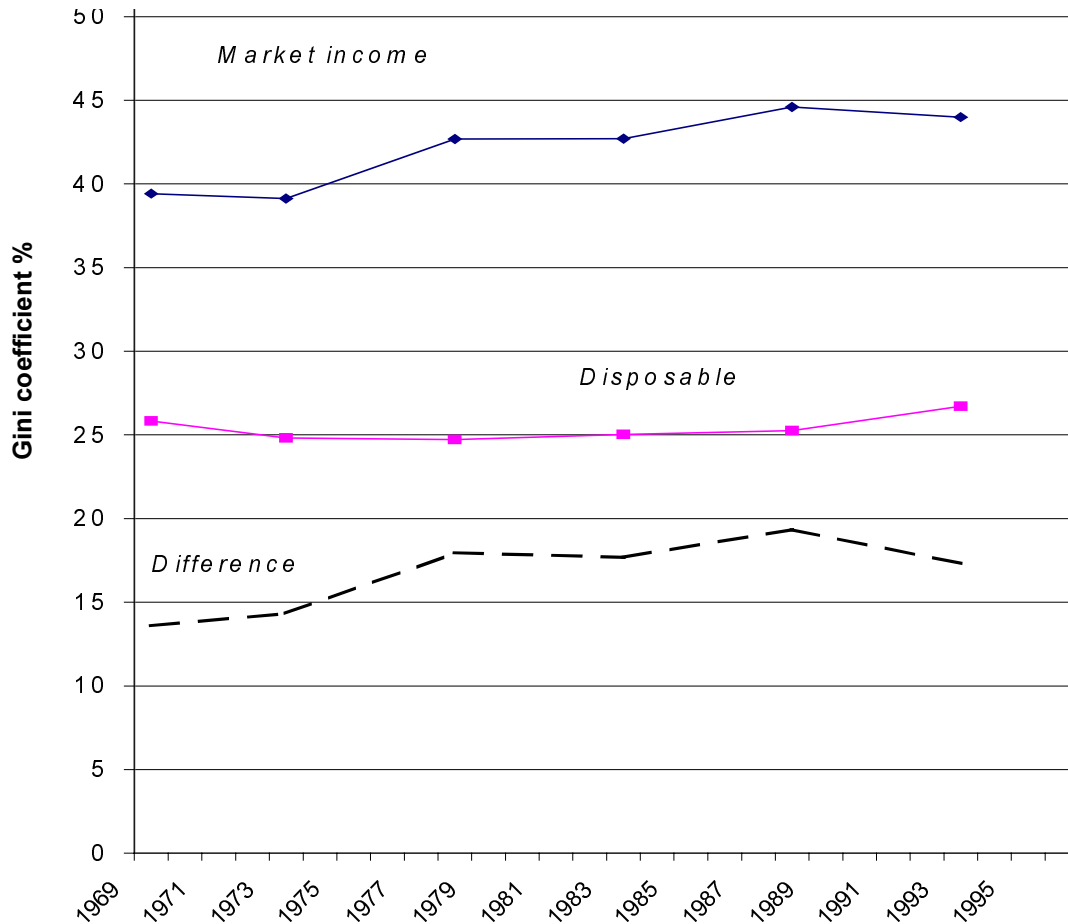
Source: Statistics Canada (1996), Table 6.

1.4 West Germany

The series for West Germany in Figure 4 has some likeness to that for Canada up to 1988 in that inequality of market incomes increased substantially after 1973, but this was not accompanied by an equivalent rise in inequality of disposable income. More recently, between 1988 and 1993, there was a slight decline in market inequality: the dashed difference line slopes down. According to Hauser (1999: 14), this reflects inroads into social protection in recent years, but its modest size should be noted: a 1½ percentage point increase in the Gini coefficient (the estimated standard error of the Gini coefficient is 0.6 of a percentage point). This does not suffice to reverse the overall view that 'The German tax and transfer system reduces the inequality of market income quite considerably. ... the German social security system,

despite the increasingly unfavourable conditions, largely reached its goals from 1973 to 1993' (Hauser, 1999: 18, my translation).

FIGURE 4
IMPACT OF GOVERNMENT BUDGET ON INCOME INEQUALITY IN
WEST GERMANY 1969-93

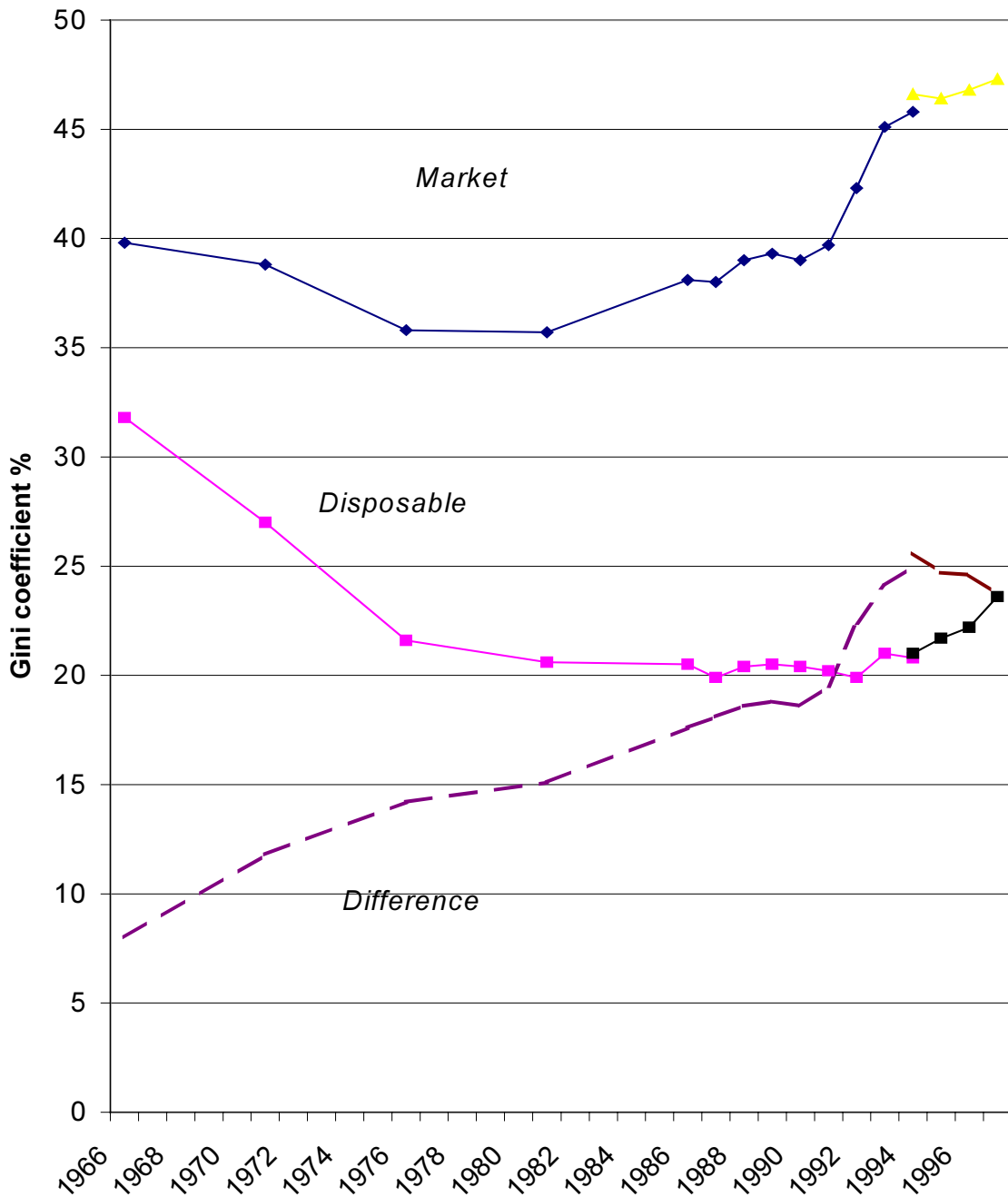


Source: 1969-88 from Becker and Hauser (1997), Table 4 and Table 6; 1993 from Hauser (1999), Table 4 and Table 5; the distribution refers to equalized household income, and excludes households with foreign heads.

1.5 Finland

The picture for Finland in the 1980s and 1990s in Figure 5 contains elements of similarity with both Canada and the United Kingdom, but attention should be drawn first to the impressive earlier record of reduced inequality in both market and disposable income (see Uusitalo, 1989 and 1999). The Gini coefficient for market incomes fell by nearly 5 percentage points between 1966 and 1976, and that for disposable income by twice as much, the

FIGURE 5
IMPACT OF THE GOVERNMENT BUDGET IN FINLAND 1966-97



Source: Uusitalo (1998), Table 2.

redistributive impact of taxes and transfers intensifying the fall in inequality (see the dashed difference line). From 1981 to 1994 the Gini coefficient for market income rose by 10 percentage points, particularly after 1990 with the economic difficulties faced at that time, the unemployment rate reaching 16 per cent in 1994. This was, however, offset by the government budget to the extent that inequality in disposable income did not increase. As is brought out

by Uusitalo (1999), the main contributors were transfer payments; the redistributive impact of taxation did not increase in line with the inequality of market income, and actually fell after 1989. Since 1994, moreover, the picture has changed as a result of policy measures cutting the redistributive impact of transfers, which have led inequality of disposable income to rise more than that of market income. As summarized by Uusitalo, the story of the 1990s in Finland was that

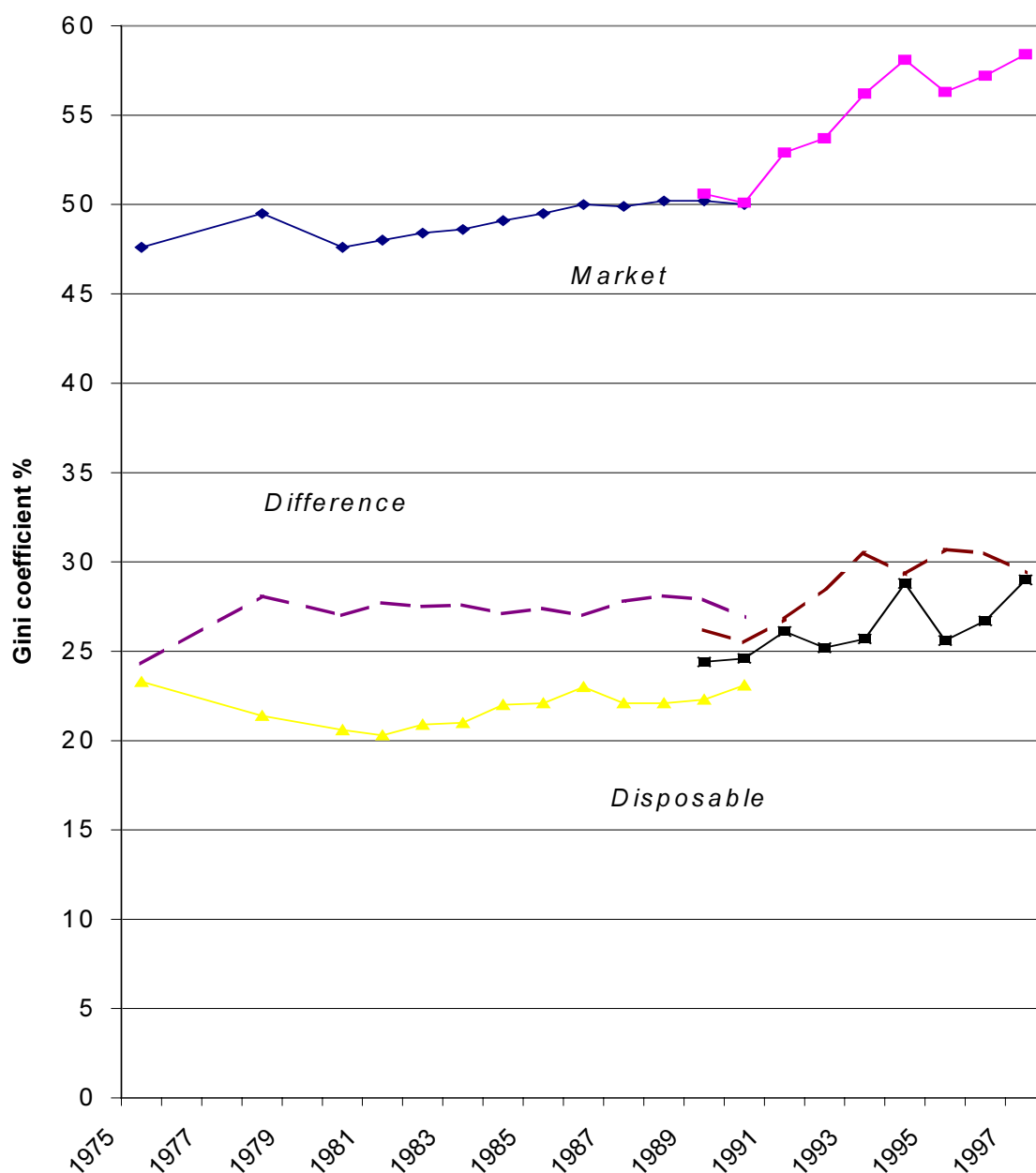
'during the deepest recession in the OECD-area in the 1990s, income inequality did not change, since redistribution of cash transfers compensated the growing inequality of factor incomes. After the recession, during years when economic growth has been among the highest in the OECD-area, income inequality has increased, because redistribution of cash transfers has declined, while factor income inequality has continued to grow' (Uusitalo, 1998: 4).

As a result of the 1994-97 upturn in inequality, Finland can be said to have a U-shaped pattern like that in the United Kingdom. There is, however, little resemblance in either the timing, or the shape of the U. In the United Kingdom, the left-hand arm of the U is relatively flat. In Finland, there was a pronounced downward trend followed by a decade of stability, and the right-hand arm is both more recent and, so far, more modest in size. Both countries have lopsided U shapes, but on different sides.

1.6 Sweden

The position in a second Nordic country, Sweden, is shown in Figure 6. In this case, a U-shape is again visible for disposable income, with the Gini coefficient rising along with that for market income since 1980. Before commenting on the impact of the budget, we should note that the Swedish case illustrates the need to interpret the observations in the light of social and economic change. The Statistics Sweden series has a rather different household definition from that in the other studies quoted here, in that young adults who live at home with their parents are treated as separate households. This may be expected to affect not only the level but also the trend in inequality measurement. Secondly, the Statistics Sweden figures, which are in part based on income tax records, include realized capital gains (not included in many other countries). Temporary tax changes in Sweden in 1994 caused many more well off households to realize capital gains in that year, causing

FIGURE 6
IMPACT OF THE GOVERNMENT BUDGET IN SWEDEN 1975-97



Source: Statistics Sweden (1999) Table 2, page 3.

the 'spike' in measured inequality in that year (see Figure 6). There was also a concentration of capital gains in 1997.² The Ministry of Finance (1999) has produced alternative estimates excluding young adults living with their parents and smoothing real capital income (i.e. also adjusting capital income

² The Gini coefficient, including capital gains, was 29.0%, compared with 26.0% when they are excluded, whereas for 1996 the difference was only 1.4% (Statistics Sweden, 1999, Table 4).

for inflation). The results are summarized as showing 'a weak increase in income inequality during the 1990s' (Ministry of Finance, 1999: 7). Bearing in mind these qualifications, we can see that over the 1980s the difference line is fairly flat, indicating that the (modest) rise in market inequality in that decade had been accompanied by a rise in disposable income inequality. In the 1990s the redistributive difference increased, in that the rise in disposable income inequality was definitely less than the increase in market inequality. According to Jansson (2000, Table 13), the Gini coefficient for factor income inequality rose by 5.4 percentage points between 1991 and 1997, whereas that for disposable income increased by 3.2 points, the difference mainly reflecting the transfer system. Overall, the total redistributive effect is of course large. The redistributive achievements of the Swedish welfare state have been described by Björklund, Palme and Svensson (1995)³ and Björklund (1998), who examine the impact not just on annual incomes but also on the long-run incomes of cohorts.⁴

1.7 United States

Finally, I turn to the country with which people usually begin: the United States. The studies of Musgrave, Pechman and others have been highly influential, but they have not been repeated on a regular basis. As far as I know, no time-series exist for the United States comparable with those shown in Figures 2-6 for other countries. The estimates of Pechman (1990) of the distribution before and after federal income taxation are only part of the picture.

II THE GOVERNMENT BUDGET IN PRINCIPLE AND THE POLICY REACTION TO DEMOGRAPHIC SHIFTS

The observed changes in the 1980s and 1990s immediately raise the question as to how far we can separate automatic and discretionary changes in

³ In comparing their findings with those in Figure 6, it should be noted that their sample excludes people aged under 25 or over 64 (and the members of their households), and that before-tax pay includes pensions, sick pay, unemployment benefits, and parent allowance. The estimates therefore exclude the impact of growing unemployment (see Agell, Englund and Södersten, 1998: 177).

⁴ The latter calculations (see Björklund and Palme, 1999) seek to separate redistribution over the life cycle from that of lifetime income, an important issue which I do not discuss here.

redistributive policy. Is it the case that progressive tax/transfer policy automatically dampens the response to adverse movements in market inequality? Does a larger increase in inequality in disposable income than in market income mean that there must have been discretionary policy changes reducing the redistributive role of the budget? In order to address these questions, we need an analytical framework.

2.1 Policy responses

The simple example of the 'pensioner' group used at the start of Section 1 suggests that a flat-rate benefit/proportional tax system would be automatically equalizing in the face of exogenous shocks. This example is, however, a special one in the sense that, by assumption, the previous tax and benefit policy remains feasible after the shift. This may be seen from the government budget constraint:

$$b p = t (1-p) \mu \tag{1}$$

where μ is the mean market wage (assumed to be the only market source of income) of the non-pensioner population, so that the overall mean income is $(1-p) \mu$. A redistribution of market income which leaves the mean unchanged is therefore consistent with constant t and b .

In general, this is not the case. Suppose that there is an increase in the proportion of pensioners (a demographic shift), drawn proportionately from all earnings ranges, so that the relative distribution of market wages remains unchanged. Per head of the total population, average income falls, and hence the tax base per head of population falls. To preserve budget neutrality either the tax rate has to rise, or the benefit per person has to be reduced. Suppose that the tax rate is held constant and benefits fall relative to overall mean income as p rises. In terms of Figure 1, the lower straight line part of the dashed Lorenz curve rotates clockwise as it extends further out (with the rise in p). The Gini coefficient for disposable income increases on this account. In the curved part of the Lorenz curve, for each individual worker the net of tax wage is unchanged, but the working population is now a smaller fraction of the total. This shrinking of the working population means that we have to go further down the earnings range to reach the top x per cent of the total population, so that, with a constant tax rate, the upper part of the Lorenz curve also moves outward. We should expect the demographic shift, coupled with a 'constant tax rate' policy, to cause a rise in inequality of disposable income, as well as in market income.

Suppose now that the government raises the tax rate in response to the increased need to pay pensions and that the benefit is maintained in relation to overall average income. I refer to this as 'sharing the burden', since the benefit is reduced in absolute terms, in line with the fall in the overall average income, and, from the budget constraint (1), the tax rate rises in proportion to p , so that net wages are also reduced. For the moment, it is assumed that there is no behavioural response to these changes in taxes and benefits. The fact that the benefit is reduced proportionally with average income means that the slope of the Lorenz curve remains unchanged at the lower end; at the same time, if the benefit is less than the lowest net of tax wage, the Lorenz curve beyond the pre-shift value of p is lower than before; and, among the working population, the slope at the end can be seen to rise. In this situation, too, therefore, we would expect to observe an increase in inequality of disposable income, even if more muted than in the first case, as a result of the demographic shift and the associated policy response.

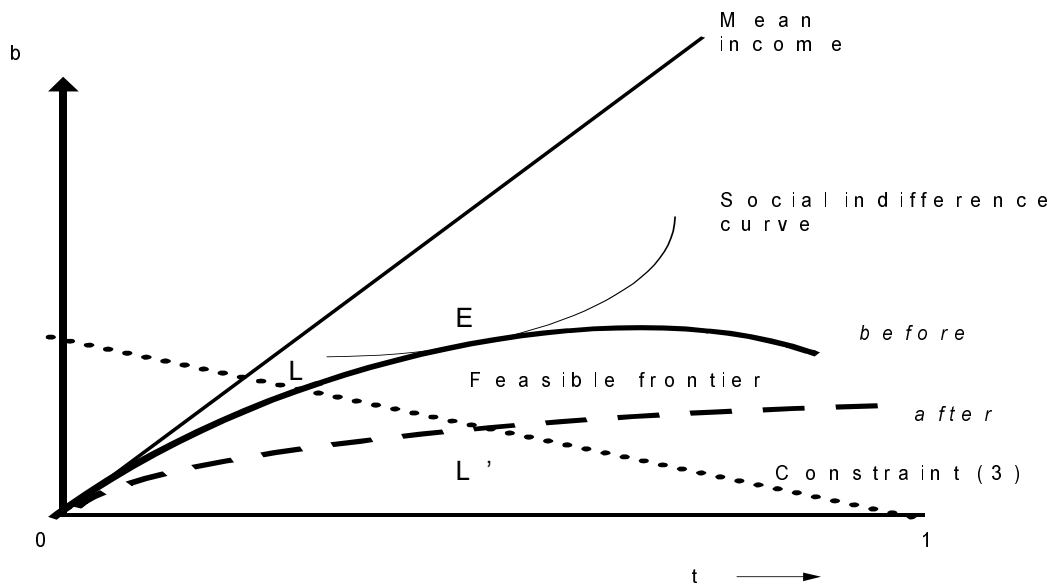
The 'sharing the burden' policy means that benefit entitlement falls in relation to the average wage, which would be the reference point in a (gross) earnings replacement scheme. A third possible situation is where the pension is maintained as a proportion of the average wage ('no scheme adjustment'), which means that the tax rate has to rise proportionately to the dependency ratio ($p/(1-p)$). If, say, p has risen from a fifth to a third, the tax rate has to double, compared with a two-thirds rise in the 'sharing the burden' case. The Lorenz curve now shifts upwards at the bottom, and there could be a fall in the Gini coefficient for disposable income. By continuity, we can see that a policy which cuts benefit entitlements by less than the fall in average income could mean that the demographic shift, plus policy response, leaves unchanged the Gini coefficient for disposable income.

2.2 Incidence

Changes in taxes and benefits may be expected to lead to behavioural change. This brings us to the issue of incidence. Some of the possible implications may be seen by extending the analytical framework already described. At the simplest level, the rise in the tax rate may reduce the level of wage income. Suppose that, overall, the working population reduces its work effort, a change which may take many forms (for example, ceasing a second job, slower return to work after time off for family responsibilities, not seeking promotion). In the government budget constraint, μ now becomes a declining function of t . In the second and third situations described above, the benefit level will be lower than predicted on the basis of constant μ . The range of choices open to the government is now shown by the heavy curved line in

Figure 7 rather than by the straight line. Also drawn is a social indifference curve indicating a policy choice, E. This refers to the situation before a rise in the size of the dependent population. The situation 'after' is shown by the dashed line, where the benefit level possible at any tax rate falls and the slope at any tax rate is reduced, making benefit cuts more attractive to the government.⁵

FIGURE 7
POLICY OPTIONS



Source: author.

A second form of behavioural adjustment is withdrawal from the labour force. Through early retirement, for example, the size of the dependent population, p , may become a function of the tax and benefit parameters. Suppose that the

⁵ Introduction of incentive considerations also affects the evaluation of the redistributive outcome. A reduction of work effort by the working population reduces their cash income, but has offsetting advantages in terms of increased leisure, home production, etc. It is therefore not appropriate to measure their welfare simply by their cash income. The correct adjustment depends on the underlying model of behaviour. A simple case is that used by Atkinson and Bourguignon (1990), where the cost of effort is assumed to be a fixed proportion, $1-\delta$, of net earnings (where $0 < \delta < 1$). The distribution is then evaluated in terms of benefits and δ times net earnings.

participation decision is based on a comparison of net income in work and the benefit level. There is then a critical wage, w^* , defined by

$$\delta w^* (1-t) = b \tag{2}$$

If we assume that the wage, w , that a potential worker can command is related to the worker's rank in the skill distribution $F(w)$, where $0 \leq F \leq 1$, there will be a proportion, $F^* = F(w^*)$, who do not participate. The proportion, F^* , rises with the tax rate and falls if benefits are cut. It is possible that $F^* = 0$, in that no one has potential wages of w^* or lower. Indeed, a government may take this as a constraint on the choice of tax and benefit parameters. For such a 'limited' welfare state, there is the constraint imposed on the supply side that

$$b < \delta (1-t) w_{\min} \tag{3}$$

where w_{\min} is the lowest wage of any potential worker. Such a constraint is shown in Figure 7, the choice in this case being L (for 'limited').

2.3 Policy choices

So far I have discussed the menu of choices open to the government in the event of a demographic shift. How could we in fact expect governments to react? As we have seen, inaction is not an option. We cannot take 'no change' as the policy reference point, since this will not, in general, allow the budget to be balanced.⁶ What then are the main considerations? We may distinguish two sides of the equation. The first, which has received most attention, is the cost side. As is clear from the government budget constraint in Figure 7, at any given tax rate benefits are lower, and a lower level of social welfare can be attained. We might expect there to be some sharing of the burden, in the sense that would be implied by moving to a lower social indifference curve in the 'normal' case. But the slope of the trade-off also worsens, inducing a move round the frontier towards lower benefits and taxes. It is possible that the tax rate would actually be cut. However, it is also possible that the tax rate will rise. In the case where the welfare state is limited by (3), we will see a fall in b , as L moves to L' , but there will also be a rise in t . With a lower benefit, the tax rate can be raised without violating the constraint, so that there is a degree of burden-sharing.

⁶ An unbalanced budget, financed through government borrowing, is also a possibility, but again this constitutes a 'policy change', which has distributional implications.

Whereas attention tends to concentrate on the cost side, the demand side of the government policy choice is also important. A rise in the dependent population certainly increases the cost, but it also increases the value attached to providing adequate benefits. Taking both sides into account, it is possible that a rise in the dependency ratio would lead a country to extend its welfare state. Whether it would do so depends on the nature of social objectives. If the government is solely concerned with the welfare of the least well off – a Rawlsian objective – then the number of people in this target category does not enter the social calculus. In this respect, however, the Rawlsian objective differs from social welfare functions that give positive weight to all of the population. If the weight is uniform, then there is no motive for redistribution. But even the most conservative of governments typically has some degree of concern for the poor. Suppose that we have what may be called 'charitable conservatism', where distributional concern is represented by a higher social marginal valuation of income for the retired population (not the voluntarily unemployed). In this case, the size of the target population enters the equation on the demand side: a doubling of the dependency ratio doubles the desirability of a more extensive transfer. In terms of Figure 7, there has been a shift in the social indifference contours, which has to be set in the balance with the increased cost. There are pressures in both directions.

Policy responses in recent decades may also have been affected by shifts in government objectives. Just to give one example, it is possible that a perception that the elderly are on average more well off has led to a fall in the weight attached to their incomes according to the charitable conservative position. This shift in objectives may offset the opposite pressure to give more weight to this group since it has become a larger fraction of the population. Or, earlier governments had more extensive redistributive ambitions, where there was concern not just with the least advantaged, but also with the relative distribution among those higher up the scale. There has been a switch to the less ambitious charitable conservative position. Changed objectives may also take the form of greater weight attached to cutting the size of the government budget. The fiscal criteria adopted by European governments at Maastricht are an example. We may be observing policy changes driven not by demographic shifts, but by new political agendas.

The explanation of such shifting agendas takes us into the field of public choice or political economy. The literature suggests a variety of possible explanations. A voting model indicates that we need to consider the preferences of the electorate and the mechanisms by which its concerns and interests are translated into action. The electorate may be influenced by the

ideology of politicians and by the attempt of these actors to obtain and retain political power. Moving beyond strictly electoral models, we have to recognize that the civil servants administering public policy may themselves have objectives which they are anxious to pursue. In the fields of taxation and social security, there are active pressure groups and lobbies. Viewed in an international context, the behaviour of national governments may be influenced by what is happening in other countries. Tax reform is contagious:

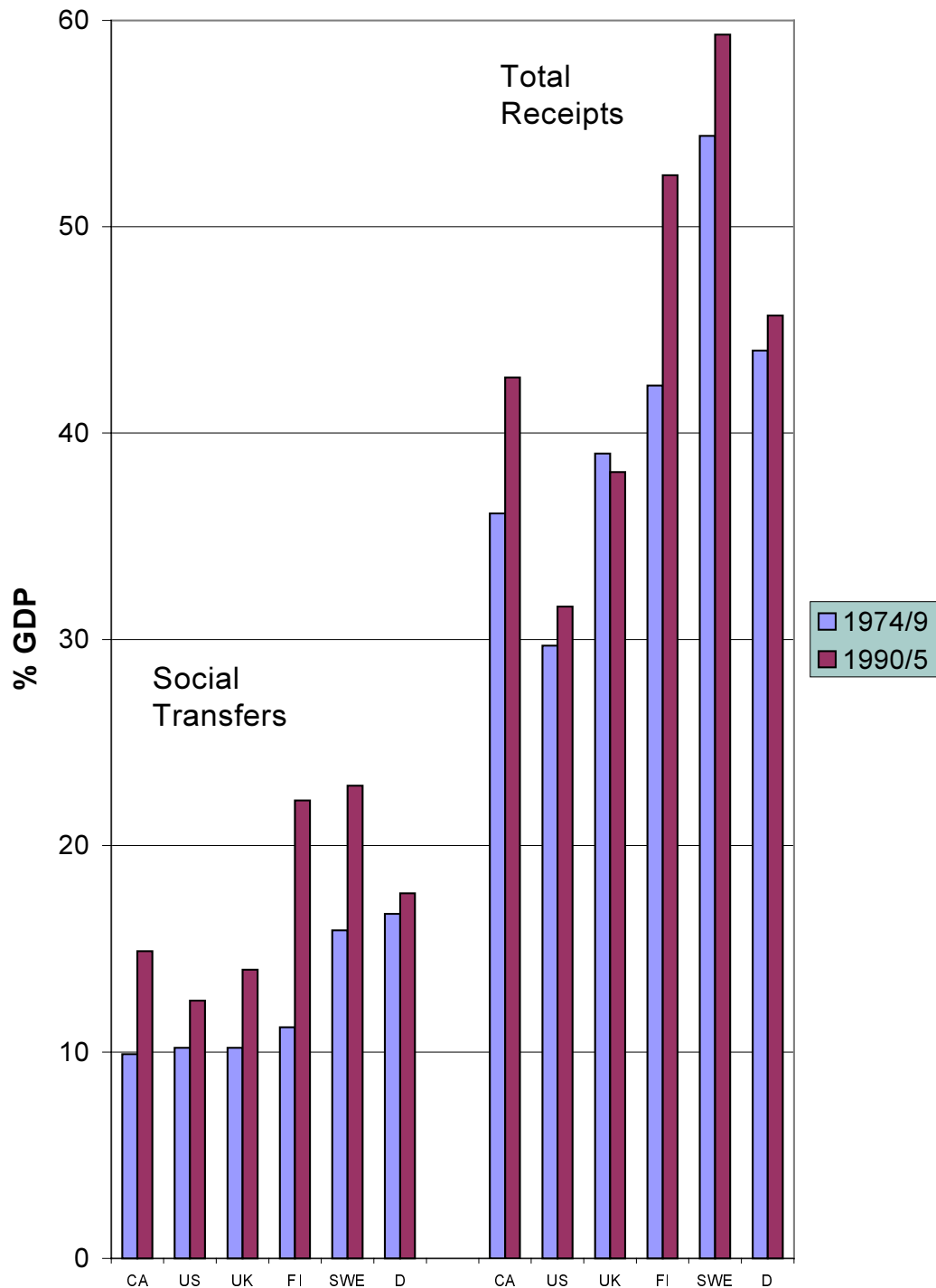
'The U.S. example raised the profile of comprehensive tax reform as an issue in public discussion in Canada' (Dodge and Sargent, 1988: 51). The actual nature of policy responses is the subject of the next section.

III POLICY CHANGES IN REDISTRIBUTIVE TAXES AND TRANSFERS: CASE STUDIES OF UNEMPLOYMENT BENEFIT AND PERSONAL TAXATION

What have been the actual policy responses? In this section, I consider some of the changes in redistributive policies which have taken place in OECD countries over the 1980s and 1990s, taking unemployment benefits and personal taxation as examples. These are only part of the redistributive process, but they are policy areas which have received a great deal of attention. I look in detail at the six countries identified in Section 1.

One approach to the policy responses is to consider the aggregate expenditure on transfers and the aggregate receipts of the government. These are illustrated in Figure 8, which shows the changes between 1974-79 and 1990-95. Social transfers increased relative to GDP in all five countries. (Germany is not included since the period spans reunification.) The increase was particularly large in Finland, where it doubled, and in Sweden. Canada and the UK show a rather similar increase. On the tax side, the picture is more mixed. There were again large increases in Finland and Sweden and a sizeable increase in Canada, but there was a fall in the UK.

FIGURE 8
 SOCIAL TRANSFERS AND TOTAL GOVERNMENT RECEIPTS AS A
 PERCENTAGE OF GDP



Source: OECD (1997a), Tables 6.3 and 6.6.

Aggregate spending has been used in a number of studies. Political scientists have investigated the relation between the political complexion of

governments and welfare spending (see for example Appendix 3 in Maravall, 1997, and Castles, 1998, Chapter 5). The relationship between aggregate transfers and poverty rates has been investigated (see for example Atkinson, Rainwater and Smeeding, 1995, Chapter 7). It is, however, clear that any such relations have to be interpreted with care. As the 'sharing the burden' example shows, a rise in total transfers relative to GNP may be the result of demographic shifts and not correspond to any policy decision to improve benefits. Aggregate figures are the outcome of a number of factors. I therefore turn to the other end of the scale, looking at the micro-policy parameters: levels of benefit, eligibility conditions, duration, tax rates, tax base, etc. Changes in micro-parameters, too, need to be interpreted with care, and I discuss issues of interpretation in the final part of the section.

3.1 Unemployment compensation

In the past, the response to an increased need for unemployment compensation has been to cut back benefits. The situation in Germany in the early 1930s (public insurance was introduced in 1927) has been described by Schmid *et al.*

'The system was unable to cope with its first test, the depression of the early 1930s. It had already come under pressure by the end of the 1920s as a result of increasing deficits, which ... were an occasion for constant changes: increases in contributions, exclusion from coverage, reductions in the level and duration of benefits, and finally even a means test (incompatible with insurance principles)... At the end of the Weimar Republic only 11 percent of the unemployed were receiving benefits' (Schmid *et al.*, 1992: 73).

Has the increased unemployment of the latter part of the 20th century led to a similar reaction?

In the *United Kingdom*, the response to rising unemployment in the 1980s was indeed to restrict benefit generosity and entitlement. The replacement rate, already low by European standards, was significantly reduced by such measures as the abolition of the earnings-related supplement, leaving only a flat-rate benefit. Atkinson and Micklewright (1989) list 17 distinct changes in unemployment insurance between 1979 and 1988, the majority of which reduced the level or coverage of benefit. In the 1990s there has been the replacement of national insurance benefit by the job-seeker allowance in 1996, restricting insurance benefit to six months.

In the *United States*, a range of measures was taken by the federal government in the 1980s to reduce the value and coverage of the unemployment benefit. These included the taxation of benefits, partially from 1979 and fully from 1986, and the requirement that states repay with interest federal loans to their trust funds, which caused states in turn to tighten eligibility to unemployment insurance and to reduce benefits. The General Accounting Office reported that, between 1981 and 1987, no fewer than 44 states adopted tighter eligibility standards or stricter disqualification provisions (*Monthly Labor Review*, September 1995: 35).

In *Canada*, the Unemployment Insurance Act of 1971 increased significantly the coverage and generosity of benefits (Card and Riddell, 1993), but a series of subsequent changes 'have been in the direction of a more restrictive or less generous programme' (OECD, 1996: 78). In 1977 the minimum number of weeks required to qualify was increased, and this was further tightened in 1979 for new entrants and repeat claimants. In 1979 the replacement rate was lowered to 60 per cent (from 67 per cent). In 1990 the entry requirements were further increased, and benefit durations reduced. In 1993 the replacement rate was further cut to 57 per cent (and in 1994 to 55 per cent except for low-income claimants with dependants), and those leaving jobs voluntarily became ineligible for unemployment insurance. Changes made in 1996, replacing unemployment insurance by employment insurance, lowered the replacement rate for repeat claimants, clawed back through the income tax system some of the benefit to those with high incomes, and capped the maximum duration at 45 weeks. The OECD notes that the ratio of beneficiaries to unemployed, which was 83 per cent in 1989/90, had fallen to 42 per cent by 1996, although not all of this fall should be attributed to programme changes (OECD, 1998c: 93).

On the other hand, it is often argued that continental European countries have not followed the Anglo-Saxon route in recent years: 'The majority of European countries have made only marginal changes to their labour market institutions in the 1990s' (Siebert, 1997: 53).

In *Germany* in 1994, for instance, the replacement rates were reduced by 3 percentage points, which could be regarded as marginal, since the replacement rate under unemployment insurance remained 60 per cent (or 67 per cent for beneficiaries with children). Stricter criteria were introduced in April 1997 concerning the conditions under which the unemployed can refuse a job offer on the grounds that it does not correspond to previous wages, but

the OECD reports that the Labour Office had difficulties in enforcing these measures (OECD, 1998a: 107).

In *Finland*, there has been a series of changes, not all in the same direction.⁷ There was a major reform of unemployment compensation in 1985 (OECD, 1995: 57). The previously flat-rate unemployment insurance system became earnings related; the benefits were significantly raised, and the eligibility widened. Benefits became taxable. From January 1994, first-time job-seekers and those who have exhausted unemployment compensation coverage became eligible to an indefinite, flat-rate, means-tested labour market support benefit, and unemployment assistance became limited in duration, but no longer means tested. This pattern of benefit improvement was reversed in September 1995, when the government launched an employment programme which included restrictions on the coverage or duration of benefit. Beginning in 1997, the period of employment required to qualify for the unemployment benefit was extended from 6 to 10 months, limiting the capacity of people to move from unemployment insurance to subsidized job programmes and then back to unemployment insurance, since the subsidized jobs do not usually last beyond six months (OECD, 1997). The effect was to phase down unemployment compensation. The sanctions for voluntary unemployment were increased from the beginning of 1998 (MISSOC, 1998: 62-63), as were the requirements for job search. The total effect of these measures was in the direction of reducing benefit receipt, but the modest scale should be noted. The OECD for example found 'progress to be largely insufficient' (OECD, 1998b: 56) towards meeting the objectives of the OECD *Jobs Strategy*.

Equally, in *Sweden* it would be wrong to suggest that all changes were in the same direction. It is true that the fiscal consolidation measures initiated in 1994 embodied reductions in the replacement rate and less than complete indexation of benefit parameters, but replacement rates were later restored, and an offsetting proposal to introduce an upper limit on the duration of benefit was repealed (OECD, 1998: 72).

Changes in unemployment compensation have therefore gone in the directions both of increased and of reduced generosity, with the latter predominating in the three Anglo-Saxon countries.

⁷ For a discussion of changes in all four Nordic countries, see Kautto *et al.* (1999).

3.2 Personal taxation

In contrast to the proportional tax considered in the simple analytical framework, we now need to separate the level and the structure of personal taxation. A rising average tax rate may coexist with a lower degree of progression. The OECD *Jobs Study*, using data up to 1991/92, concluded that the tax rate had increased in many countries, but pointed out that there had been a rearrangement of the tax burden via reduced progression: 'There were large reductions in the schedule rates of tax in ... Germany, Norway, Sweden, the United Kingdom and the United States. These reductions, however, were mainly targeted on the higher income groups' (OECD, 1994: 241).

On the other hand, summarizing the experience of 10 OECD countries, Messere concluded that

'there was a sharp decline in top tax rates between 1985 and 1994, together with a reduction in the number of rates. This does not, however, entail a loss of overall progressivity of income tax systems among most of the ten countries, because of the offsetting progressivity of the base-widening as well as increases in tax thresholds' (1998: 11).

Looking at the six countries identified in Section 1, we find that there have indeed been significant changes in the structure of personal income taxation. Just to give one index, the average number of tax brackets (for four of the countries) fell from more than 10 to slightly over four (Messere, 1998: 13).

In the *United Kingdom*, the investment income surcharge, payable at a rate of 15 per cent on investment income in excess of a threshold, was abolished with effect from 1984. The changes in rate structure in the 1988 budget were undoubtedly a major step in the direction of making the system less progressive. The structure of a basic rate of 27 per cent, followed by graduated rates from 40 to 60 per cent, was replaced by a two-rate structure of 25 and 40 per cent. The subsequent introduction of reduced rate bands has moderated the effect, but the system remains much less progressive at the top. This was not the only substantial change in the personal tax system, where the period saw also the move to independent taxation of husbands and wives and a reduction in the deductibility of interest payments for house purchase. It is not easy to predict the distributional impact of such changes, but the calculations of Redmond, Sutherland and Wilson (1998, Figure 3.2) suggest that the 1996/97 income tax system, compared to that in 1978/79 indexed by

price increases, was considerably less progressive, particularly at the top decile.

Tax reform in the *United States* has been widely documented. The Tax Reform Act of 1986 was described by Pechman as 'the most significant piece of tax legislation enacted since the income tax was converted to a mass tax during World War II' (1987: 11). The changes in rate structure were indeed dramatic, replacing the 14 rates going from 11 to 50 per cent by a two-rate structure of 15 and 28 per cent (with an intermediate 33 per cent arising from the phasing-out of the benefit from the personal exemptions and lower rate bands). This 'collapse of the rate structure' was seen by Musgrave as 'a giant step towards the principle of a flat rate tax' (1987: 65). The change in income tax rates was accompanied by tax base broadening (full taxation of capital gains, curtailment of deductions, lengthening depreciation periods – see Sunley and Stotsky, 1998, page 407) and by a shift in taxation from individuals to corporations. This latter switch was taken into account by Pechman (1990) in his estimates of the distributional impact. Assuming that corporate income taxes are borne by capital income, he finds (Pechman, 1990, Table 3) that the changes in the US since 1980, of which the most important is the Tax Reform Act of 1986, have reduced the tax burden for the bottom three deciles, increased the burden for the next six deciles, and reduced it for the top 10 per cent. The tax rate for the top 1 per cent in 1988 was far below that in 1970: 'The inescapable conclusion from these figures is that the well-to-do in our society had very large reductions in tax rates in recent years, while the tax rates at the low and middle income levels have not changed much' (1990: 4).

The most significant subsequent legislation in the early 1990s was the Omnibus Budget Reconciliation Act of 1993 which was directed at reducing the deficit, but also was concerned with progressivity with the creation of two new marginal income tax rates at the top end (36 per cent and 39.6 per cent) and the expansion of the earned income tax credit, bringing in low-income workers without children.

In *Canada*, the government in 1988 simplified the federal income tax structure in a similar way, replacing the 10-bracket schedule, from 6 to 34 per cent, by three rates of 17, 26 and 29 per cent. This was accompanied by base-broadening measures, with the elimination of deductions and the conversion of deductions to credits of the same value to all taxpayers. The elimination of tax preferences previously benefiting high incomes had the effect of increasing effective, as opposed to nominal progressivity, and the overall effect may have been increased redistribution. According to Dodge and

Sargent, 'there is a modest shift in the share of federal tax payable from lower to higher income groups' (1988: 58). To the federal tax has to be added provincial income tax, and Bird, Perry and Wilson note that 'since 1987, the provinces have taken up the slack, pushing the top marginal rates to well over 50 per cent again for most provinces' (1998: 73).

In *Germany*, a substantial reform of personal income taxation was carried out in the period 1986-90. The basic tax allowance was increased, and the child tax allowance reintroduced. The marginal tax rates were flattened to become a linear function of income. This resulted in lower marginal rates at all levels, particularly in the upper middle part, and less at the very top (the top rate was reduced only from 56 to 53 per cent). Such a pattern of reduction meant that the average tax rate was reduced by about the same absolute number of percentage points from around 70,000 DM. The tax base was broadened, but there was a sizeable reduction in tax revenue. Subsequently, however, according to the OECD, 'In the wake of German reunification, the supply-side strategy of progressive income tax relief implemented since 1986 gave way to comprehensive tax increases' (OECD, 1994a: 95).

In 1997, proposals for a further wide-ranging reform of personal and corporate tax systems was rejected, with much of the disagreement centring on the distributional implications (OECD, 1998a: 69).

In *Finland*, a process of tax reform was implemented in the late 1980s. Marginal rates were reduced, the highest personal income tax rate levied by the central government falling from 51 per cent to 39 per cent. The aim was, however, to combine the rate changes with a broadening of the tax base (such as higher taxation of fringe benefits and lower deductibility of interest payments), so as to leave the average effective tax rates in different income classes unchanged (OECD, 1989: 87). It was estimated that the non-taxability of certain incomes had previously reduced the redistributive role of taxation (Aarnio, 1989). From January 1993, individual capital income was taxed at a flat rate of 25 per cent, as under the Nordic system of dual income taxation (Sørensen, 1994; Nielsen and Sørensen, 1997).

In the case of *Sweden*, the Government announced in 1988 the introduction of a comprehensive tax reform starting in 1991.⁸ This reform, billed as the 'Tax

⁸ There had been a 'minor' tax reform in 1981, implemented between 1983 and 1986, which lowered the top rate of income tax (to 70%) and sought to offset the distributional

Reform of the Century' (Agell, Englund and Södersten, 1996, 1998), involved a substantial reduction in top marginal tax rates, from around 75 per cent to around 50 per cent (depending on local tax rates). This was in part financed by a broadening of the income tax base (for example in the coverage of non-cash benefits) and by a broadening of the coverage of the value added tax. Capital income became taxable under a dual income tax at a flat central government rate of 30 per cent. Net transfers to families with children were increased via child and housing allowances. The 1991 tax reform was presented as not affecting the degree of redistribution: 'According to its proponents, the reform would avoid the classical goal conflict between efficiency and income distribution. In spite of drastic marginal tax cuts, high-income earners were not supposed to gain relatively to other groups' (Agell, Englund and Södersten, 1996: 644-45). According to the OECD, the reform 'was neutral with respect to overall income equality' (1996a: 70).

Subsequent to the Tax Reform of 1991, there were further tax adjustments, directed in part at dealing with the under-financing of the reform. In 1994, the incoming government announced a series of fiscal consolidation measures including reduced replacement rates (see above) and lower child allowances, and the top tax rate was raised to 25 per cent, plus an average local tax rate close to 32 per cent (OECD, 1998, page 71). This still represents a considerable reduction on the earlier top rates.

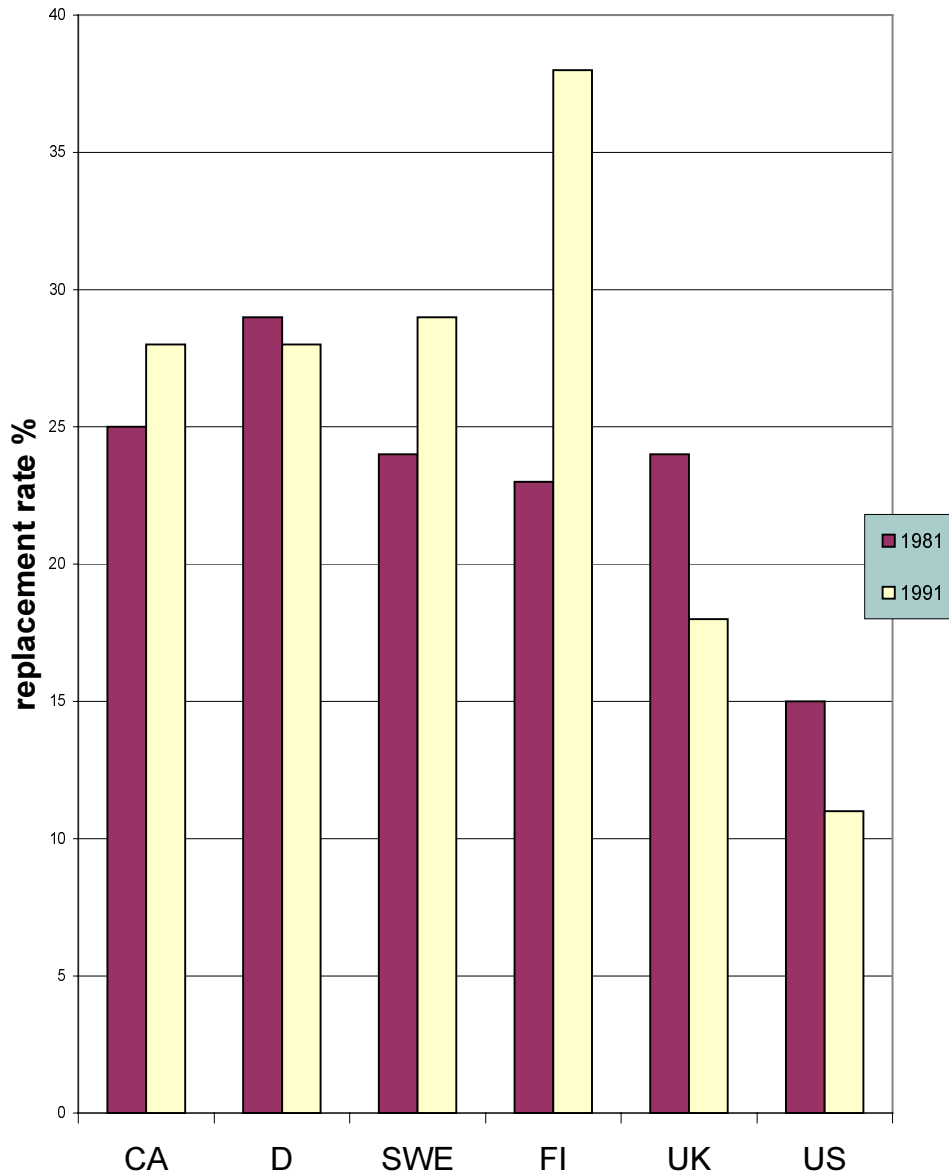
3.3 Evaluation of the overall impact

In broad terms, there appear to be similarities in the general direction of change in policy parameters, but there are significant differences in its extent and in some cases countries have gone in different directions. We have moreover to allow for the possible differences in the impact of policy parameter changes on the individual citizen. Even modest or symbolic cuts may have dramatic implications for individuals. Politicians are very aware of this, and debate about policy reform is often heavily influenced by calculations of the impact in individual cases. Calculations for 'representative individuals' are widely used in policy analysis. An example is provided by the OECD calculations of the replacement rates for the unemployed, shown for 1981 and 1991 in Figure 9 for the six countries. The replacement rate is a summary measure of benefit entitlements, based on an average for 18 cases (crossing three family situations with three unemployment durations and two earnings levels). The replacement rate rose in Canada, Sweden and Finland; it

impact by a progressive child benefit which was higher for the third and subsequent children in a family (see Björklund, Palme and Svensson, 1995).

was broadly constant in Germany and fell in the UK and the US. (It should be borne in mind that a number of the changes described above came after 1991.)

FIGURE 9
EVOLUTION OF REPLACEMENT RATES FOR UNEMPLOYED 1981-91



Source: OECD (1994), Table 8.B.1.

Such hypothetical calculations make some allowance for the variety of individual circumstances, but there are nonetheless serious limitations with any such indicator. There is no real alternative to the use of sample surveys of households which reflect the full diversity of circumstances, which means that the impact of reductions in benefits on the overall distribution of household

incomes cannot be straightforwardly deduced. While there is some presumption that benefit recipients are to be found in the lower part of the distribution, this is not inevitably the case, since they may have partners who are employed and they may have other sources of income. The second essential ingredient in a distributional analysis is inclusion of the full range of policies. My case studies of unemployment and personal income taxation are only part of the story. Reforms of benefits and taxation have been accompanied by other measures which have redistributive implications, and we need to look at the total impact. Just to give one instance, the thrust of policy in a number of countries has been to combine reductions in unemployment benefit with active labour market policies. If the active measures lower unemployment, then the distribution of market income will improve and there will be less need for redistribution. Moreover, there are interactions among different policies, as is illustrated by an example affecting the two areas considered here: the imposition of income taxation on benefits received – a policy change made in the UK – depends on the structure of income tax rates.

There have been interesting studies of the distributional effects of policy reforms in individual countries which combine the two features emphasized above: based on simulations of the full set of policy changes using representative samples of households. In Sweden, Björklund, Palme and Svensson (1995) have used the HINK annual income survey provided by Statistics Sweden to examine pre- and post-distributions under the old and new tax rules following the 1991 Swedish tax reform. Their summary of the effect of the reform on the overall income distribution is that 'a decreased equalizing effect due to decreased income tax progressivity and lower overall average income tax rates was offset by increased horizontal equity of income taxes and increased child and housing allowances' (Björklund, Palme and Svensson, 1995: 263).

At the same time, they point out that this result of counteracting forces could still mean that subgroups of the population were differentially affected. The taxation of earned income became less redistributive, so that in this respect there were similarities with, for example, the UK. The flat tax on capital may have reduced tax avoidance by the wealthy, increasing the redistributive impact. Child and housing allowances were more important, increasing redistribution for those with two or more children. This underlines the dangers in seeking to make summary statements about the degree of redistribution and points to the need to take account of differences apart from income and for a life-time, as well as a snapshot picture.

The Swedish study just cited focused on the 1991 tax reform and subsequent measures. In the UK, Redmond, Sutherland and Wilson (1998, Table 4.3) have examined the total effect of all tax and benefit changes over the period 1978/79 to 1996/97. They estimate that the 1996/97 tax and benefit system, compared with that in 1978/79 indexed in line with per capita GDP, raised the net tax burden for all decile groups except the top, with large losses in the bottom three decile groups. The Gini coefficient would have been lower by about 5 percentage points with the 1978/79 system.

Ideally, we would be able to compare such studies across countries, contrasting, on a systematic basis, the distributional impact of policy reforms in different countries. However, as far as I know, no such cross-country study exists. There are comparisons of changes in the overall level of taxation in different countries; there are comparisons across countries of the extent of redistribution at a point in time (see for example Wagstaff *et al.*, 1999). But there is no systematic set of comparisons of the distributional effect of the changes in policy in different countries over the 1980s and 1990s. In order to carry out such research, we need policy simulation models for different countries on a comparable basis. In the European Union, the EUROMOD project is bringing together micro-data for all member states which will allow analysis of the distributional impact of policy changes on a parallel basis in member states, as well as in the Union as a whole (see Sutherland, 1997). This will be subject to the same limitations as national tax-benefit models in that some features of policy reforms are not easily modelled; for example those directed at base broadening are less easily incorporated than changes in the rate structure. But it will offer a first step.

IV SUMMARY OF CONCLUSIONS

In this paper, I have examined the redistributive impact of the government budget in five OECD countries over the period from 1980 (or earlier) to the mid-1990s. I began with the evidence in terms of inequality of market income and disposable income. The countries all saw a rise in the inequality of market income between 1980 and the mid-1990s, but the experience with regard to the distribution of disposable income differed both across countries and across time. Different governments appear to have made different choices. Canada and the United Kingdom are two good examples. In Canada, over the period studied, there was no apparent increase in the inequality of disposable

income, the government budget offsetting the rise in market income inequality. In the United Kingdom, up to the mid-1980s the redistributive impact of the government budget increased by enough to offset the more unequal market incomes, but after 1984 the story is quite different: between 1984 and 1990 the redistributive contribution of transfers and taxes fell sharply, reflecting a definite policy change. Finland exhibits elements of both. Redistribution was effective in preventing rising inequality in disposable income when the inequality of market income rose abruptly in the early 1990s, but there was a subsequent change in redistributive policy, which has been scaled back since 1994.

In order to interpret this diversity of outcomes, an analytical framework is necessary, and this has been the subject of Section 2. Using a simple theoretical model, I argue there that we cannot distinguish 'automatic' from 'discretionary' policy responses, since inaction is not, in general, consistent with budget balance. There can be a range of different policy reactions. Depending on the policy choice, a demographic shift could lead to a rise or fall in the Gini coefficient for disposable income, or leave it unchanged. The choice made by governments will reflect a balancing of cost considerations and redistributive objectives, and both sides of this balance can be affected by demographic and other shifts. Attention has tended to focus on the cost side, with increased dependency making the trade-off less favourable to social transfers, but the demand side of the government policy choice is also important, and a rise in the size of the dependent population can increase the value attached to providing adequate benefits. Taking both sides into account, it is possible that a rise in the dependency ratio would lead a country to extend its welfare state. Whether it would do so depends on the nature of social objectives, and here we may have observed shifts over the period in question. Inequality of disposable income may have risen not because of external pressures such as those from increased dependency, but because less priority is attached to redistribution.

Actual government policy responses in the six OECD countries are reviewed in Section 3. Taking unemployment benefits and personal income taxation as case studies, we see that the changes to policy parameters differed in extent and even in direction. Reduced progression in tax rates has been pursued in all countries, but in some there have been reversals, and in a number it has been accompanied by base-broadening which has offset the overall redistributive effect. The United Kingdom stands out as having had the most substantial and sustained reduction in income tax progressivity. Benefit levels and coverage have been cut, but in some countries the adjustment is modest in extent. The

Anglo-Saxon countries (Canada, the United Kingdom and the United States) have significantly reduced the generosity and coverage of their unemployment benefit programmes, but the changes in the Continental European countries have been more limited. These differences undoubtedly in part reflect differences in policy choices by governments faced with similar external changes, but differences across countries have also arisen on account of changed circumstances which apply to specific countries. Germany, faced with the domestic agenda of reunification, may have responded differently from the United Kingdom. Finland and Sweden may have made fiscal adjustments as a result of their accession to the European Union. Such examples underline the richness of the story which needs to be told about redistribution and income inequality, a story which defies a simple summary.

REFERENCES

Aarnio, L. (1989) 'The Reform of Income Taxation in Finland', *Bank of Finland Bulletin*, Vol. 63.

Agell, J., P. Englund and J. Södersten (1996) 'Tax Reform of the Century: The Swedish Experiment', *National Tax Journal*, Vol. 49: 643-64.

Agell, J. P. Englund and J. Södersten (1998) *Incentives and Redistribution in the Welfare State*, Macmillan: London.

Atkinson, A. B. (1997) 'Bringing Income Distribution in from the Cold', *Economic Journal*, Vol. 107: 297-321.

Atkinson, A. B. (2000) 'The Changing Distribution of Income: Evidence and Explanations', K. W. Rothschild Lecture, *German Economic Review*, Vol. 1: 3-18.

Atkinson, A. B. and F. Bourguignon (1990) 'The Design of Direct Taxation and Family Benefits', *Journal of Public Economics*, Vol. 41: 3-29.

Atkinson, A. B. and J. Micklewright (1989) 'Turning the Screw: Benefits for the Unemployed 1979-88', in Dilnot, A. and I. Walker (eds.) *The Economics of Social Security*, Oxford University Press: Oxford.

Atkinson, A. B., L. Rainwater and T. Smeeding (1995) *Income Distribution in OECD Countries*, OECD: Paris.

Becker, I. and R. Hauser (1997) 'Abgaben- und Transfersystem wirkt Polarisierungstendenzen entgegen', *Arbeitspapier*, Nr. 12, EVS-Projekt: Frankfurt University.

Bird, R. M., D. B. Perry and T. A. Wilson (1998) 'Canada', in Messere, K. (ed.) *The Tax System in Industrialized Countries*, Oxford University Press: Oxford.

Björklund, A. (1998) 'Income Distribution in Sweden: What is the Achievement of the Welfare State?', *Swedish Economic Policy Review*, Vol. 5: 39-80.

Björklund, A. and M. Palme (1999) 'Income Redistribution within the Life Cycle versus between Individuals: Empirical Evidence Using Swedish Panel Data', mimeo, Stockholm.

Björklund, A., M. Palme and I. Svensson (1995) 'Tax Reforms and Income Distribution: An Assessment Using Different Income Concepts', *Swedish Economic Policy Review*, Vol. 2: 229-66.

Brandolini, A., (1998) 'A Bird's Eye View of Long-Run Changes in Income Inequality', Banca d'Italia: Rome.

Card, D. and W. C. Riddell (1993) 'A Comparative Analysis of Unemployment in Canada and the United States', in Card, D. and R. B. Freeman (eds.) *Small Differences That Matter*, University of Chicago Press: Chicago.

Castles, F. G. (1998) *Comparative Public Policy*, Edward Elgar: Cheltenham, UK.

Dodge, D. A. and J. H. Sargent (1988) 'Canada', in Pechman, J. A. (ed.) *World Tax Reform*, Brookings Institution: Washington, DC.

Fritzell, J (1993) 'Income Inequality Trends in the 1980s: A Five-Country Comparison', *Acta Sociologica*, Vol. 36: 47-62.

Gottschalk, P. and T. M. Smeeding (1997) 'Cross-National Comparisons of Earnings and Income Inequality', *Journal of Economic Literature*, Vol. 35: 633-87.

Hauser, R., (1999) 'Personal Primär- und Sekundärverteilung der Einkommen unter dem Einfluss sich ändernden wirtschaftlicher und sozialpolitischer Rahmenbedingungen: eine empirische Analyse auf der Basis der Einkommens- und Verbrauchstichproben 1973-1993', *Allgemeines Statistisches Archiv*, Vol. 83: 88-110.

Jansson, K., (2000) 'Inkomstfördelningen under 1990-talet', SCB: Örebro, Sweden.

Kautto, M., M. Heikkilä, B. Hvinden, S. Marklund and N. Ploug (1999) *Nordic Social Policy*, Routledge: London.

Krugman, P. (1994) 'Past and Prospective Causes of High Unemployment', *Reducing Unemployment: Current Issues and Policy Options*, Federal Reserve Bank of Kansas City: Kansas City, MO.

Maravall, J. M. (1997) *Regimes, Politics and Markets*, Oxford University Press: Oxford.

Messere, K. (ed.) (1998) *The Tax System in Industrialized Countries*, Oxford University Press: Oxford.

Ministry of Finance (1999) *Government Budget Bill 1999: Report on Income Distribution*, Ministry of Finance: Stockholm.

MISSOC (1998) *Social Protection in the Member States of the Union*, MISSOC, DG-V: Brussels.

Musgrave, R. A. (1987) 'Short of Euphoria', *Journal of Economic Perspectives*, Vol. 1: 59-71.

Musgrave, R. A., K. E. Case and H. Leonard (1974) 'The Distribution of Fiscal Burdens and Benefits', *Public Finance Quarterly*, Vol. 2: 259-311.

Musgrave, R. A., J. J. Carroll, L. D. Cook and L. Frane (1951) 'Distribution of Tax Payments by Income Groups: a Case Study for 1948', *National Tax Journal*, Vol. 4: 1-53.

Nielsen, S. B. and P. B. Sørensen (1997) 'On the Optimality of the Nordic System of Dual Income Taxation', *Journal of Public Economics*, Vol. 63: 311-29.

OECD (1989) *OECD Economic Surveys: Finland 1989*, OECD: Paris.

OECD (1994) *The Jobs Study*, OECD: Paris.

OECD (1994a) *OECD Economic Surveys: Germany 1994*, OECD: Paris.

OECD (1995) *OECD Economic Surveys: Finland 1995*, OECD: Paris.

OECD (1996) *OECD Economic Surveys: Canada 1996*, OECD: Paris.

OECD (1996a) *OECD Economic Surveys: Sweden 1997*, OECD: Paris.

OECD (1997) *OECD Economic Surveys: Finland 1997*, OECD: Paris.

OECD (1997a) *Historical Statistics: 1960-1995*, OECD: Paris.

OECD (1998) *OECD Economic Surveys: Sweden 1998*, OECD: Paris.

OECD (1998a) *OECD Economic Surveys: Germany 1998*, OECD: Paris.

OECD (1998b) *OECD Economic Surveys: Finland 1998*, OECD: Paris.

OECD (1998c) *OECD Economic Surveys: Canada 1998*, OECD: Paris.

OECD (1998d) *The Tax/Benefit Position of Employees, 1997*, OECD: Paris.

Office for National Statistics (1998) 'The Effects of Taxes and Benefits on Household Income', *Economic Trends*, No. 533, April, 33-67.

Pechman, J. A. (1985) *Who Paid the Taxes, 1966-85?*, Brookings Institution: Washington, DC.

Pechman, J. A. (1987) 'Tax Reform: Theory and Practice', *Journal of Economic Perspectives*, Vol. 1: 11-28.

Pechman, J. A. (1990) 'The Future of the Income Tax', *American Economic Review*, Vol. 80: 1-20

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

Redmond, G., H. Sutherland and M. Wilson (1998) *The Arithmetic of Tax and Social Security Reform*, Cambridge University Press: Cambridge.

Royal Commission on the Distribution of Income and Wealth (1977) 'Third Report on the Standing Reference', *Report*, No. 5, Cmnd. 6999, HMSO: London.

Schmid, G., B. Reissert and G. Bruche (1992) *Unemployment Insurance and Active Labor Market Policy*, Wayne State University Press: Detroit.

Siebert, H. (1997) 'Labor Market Rigidities: At the Root of Unemployment in Europe', *Journal of Economic Perspectives*, Vol. 11, Number 3: 37-54.

Sørensen, P. B. (1994) 'From the Global Income Tax to the Dual Income Tax: Recent Tax Reforms in the Nordic Countries', *International Tax and Public Finance*, Vol. 1: 57-79.

Statistics Canada (1996) *Income after Tax: Distributions by Size in Canada 1994*, Statistics Canada: Ottawa.

Statistics Sweden (1999) 'Income Distribution Survey in 1997', *Statistiska meddelanden*, 9,901, Stockholm.

Sunley, E. M. and J. G. Stotsky (1998) 'The United States', in Messere, K., (ed.) *The Tax System in Industrialized Countries*, Oxford University Press: Oxford.

Sutherland, H. (1997) 'The Euromod Preparatory Study: A Summary Report', *Microsimulation Unit Working Papers*, No. 9,705.

Uusitalo, H. (1989) *Income Distribution in Finland*, Central Statistical Office of Finland: Helsinki.

Uusitalo, H. (1998) 'Changes in Income Distribution during a Deep Recession and After' (mimeo), STAKES: Helsinki.

Uusitalo, H. (1999) 'Changes in Income Distribution during a Deep Recession and After' (mimeo), STAKES: Helsinki.

Wagstaff, A. *et al.* (1999) 'Redistributive Effect, Progressivity and Differential Tax Treatment: Personal Income Taxes in Twelve OECD Countries', *Journal of Public Economics*, Vol. 72: 73-98.

