Transfers, targeting and poverty

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1. Introduction

The alleviation of poverty by means of transfers is an important policy issue in most industrial countries. In the UK, the government has just gone through what is claimed to be the most thorough review of social insurance and income maintenance in the past four decades. On the other side of the Atlantic, almost every administration has investigated the problem and suggested reforms. There is currently a Presidential Commission discussing these issues under the general rubric of the problem of the family in the US. The relevant feature of the policy environment in the 1980s in all advanced countries has been budgetary tightness. Transfer budgets have not expanded as fast as in previous decades, and may even have been cut in real terms in some cases. This new era of conservatism has posed the policy problem in sharp relief: how best should current systems be reformed so as to achieve maximum impact on poverty, given the budgetary restrictions?

The concept of targeting underlies much of the debate. With a fixed budget, it is obviously true that if transfers can be costlessly channelled to the poor, and leakages to the non-poor minimized, the budget will be used efficiently in alleviating poverty. But such targeting of transfers to the poor is not costless. Income testing or means testing imposes high marginal tax rates on the poor, which may be economically inefficient. Added to this, certain programmes with means testing have low take-up rates by the poor because of the stigma that attaches to them. It is the trade-offs between the economic costs and benefits of targeting that is the object of this paper.

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SUMMARY

Poverty

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In spite of poverty alleviation programmes in the UK and the US, poverty still exists in both countries, and a significant share of welfare funds do not even reach the poor. This is partly because funds are simply limited and shrinking. But there are also fundamental problems in designing programmes of poverty alleviation. Maximum effectiveness would seem to suggest that transfers ought to be targeted as precisely as possible at those who most need them. Unfortunately, this is socially costly for two reasons. First, means-based transfers imply that the poor face a very high marginal tax rate, sometimes in excess of 100%, which is a major disincentive to work effort. The second difficulty is the stigma attached to means testing, and the low take-up rate this may induce.

This article presents the salient features of the US and UK poverty programmes, discusses the principles behind poverty alleviation and considers various reform proposals. Among the alternatives is the idea of shifting even further away from means testing towards contingent benefits – making transfers dependent on the characteristics most often associated with poverty. The author argues that the present programmes reflect some essential considerations on which it is possible to build, and that wholesale reform would be inappropriate. Nor is it clear that public support exists for a major extension of transfers to the poor. Indeed, existing inefficiencies may be part of the price of public acceptance of the transfer programmes already in place.

As a background to the later analytical discussion, the paper starts in Section 2 with a comparison of the transfer systems in the UK and the US, and their impact on poverty. The mix between means-tested and non-means-tested programmes in the two countries is considered, and related to the target efficiency of total transfers. It should be noted at the outset that, while I wish to assess the impact of transfer systems on poverty, the alleviation of poverty is only one of a number of objectives that these systems pursue on both sides of the Atlantic. Historically the programmes have evolved in response to particular needs, such as unemployment insurance or retirement pensions. To the extent that the systems are intended to provide social insurance, it is unfair to assess them with respect to poverty alleviation. While accepting the weight of this argument, I would nevertheless suggest that the major focus of recent policy debates has indeed been on transfers as anti-poverty devices, and individual programmes do get assessed in terms of their impact on the poor. Thus Burtless (1986) recognizes that while 'none of the social insurance programs was specifically designed to eliminate poverty, ... nonetheless, these programmes are far more important than means-tested transfers in raising families out of poverty.' In fact, it is the very size of social insurance transfers that raises the question of whether poverty could not be alleviated more efficiently by retargeting such expenditures and hence, given their magnitude, have a major impact on poverty. In what follows, therefore, I will focus on the transfer systems in the UK and the US in terms of their effects on poverty, other policy objectives notwithstanding.

In Section 3 I turn to a discussion of the principles of targeting and transfers, particularly the analysis taking into account the effects of transfer targeting on labour supply. The analysis suggests that sharper targeting, by means of higher marginal tax rates on the poor, is not necessarily recommended by existing formal models – the inefficiencies caused by high marginal tax rates tend to offset the gains of finer targeting. As it turns out, policy discussions focus more on poverty individual-specific non-income information (such as unemployment, retirement or family size) to reallocate spending among a number of programmes which are not means-tested and thus are less affected by individual-specific, non-income information (such as unemployment, retirement or family size) to reallocate spending among a number of programmes which are not means tested and thus are less affected by the problem of welfare stigma.

In the concluding section, I ask whether poverty can be reduced dramatically by significant retargeting of expenditures, taking the overall transfer budget as given. The answer to this question is largely in the negative. Sharper targeting has costs in terms of higher marginal

tax rates on the poor, low take-up rates because of welfare stigma, and incentives to acquire the characteristics of the favoured contingencies whenever contingencies are used in targeting. Moreover, political support for loosely targeted programmes may reflect the net transfers that the non-poor wish to make to the poor: unless the political will exists for such redistribution, reorganization of structure is unlikely to have much effect.

2. A Comparison of transfers, targeting and poverty in the UK and the USA.

2.1. Terminology and definitions

In this section I wish to compare the transfer systems in the UK and in the USA, to consider their impact on poverty and to relate this to the extent of targeting displayed in the two systems. In particular, my focus will be on means-tested (or income-tested) transfers and non-means-tested transfers. Before proceeding to look at the figures however, let us begin with a brief discussion of various definitions and of terminology.

To start with, let us note some differences in terminology. In the UK the term 'social security' refers not only to social insurance schemes (such as unemployment compensation and retirement pensions) but also to the broader range of income maintenance programmes. In the US, the term social security is reserved for that part of social insurance which deals with retirement, while income maintenance programmes are called 'welfare' programmes. But in the UK the word welfare usually only appears in the 'the welfare state,' which refers to state provision of health, education and other services. In what follows I will use both sets of terminologies – the exact meaning should be clear from the context. Terminology is not the only difference between the two systems. They differ in major respects with regard to a number of elements such as coverage of population and the nature of the transfer. I will begin with a brief description of the main components of the two systems and then go on to consider evidence on the effects they have had on poverty.

Table 1 lists the major components of expenditure on social insurance and income maintenance programmes in the UK and the US. I have divided the expenditure into two main categories – contingent benefits and means-tested benefits. The intention is to draw a distinction between those programmes which are loosely targeted on the poor and those which are not. But this distinction does not necessarily fit well with

Table 1. Composition of expenditures on contingent and means-tested benefits in the UK and in the US (% of total)

UK		US	
Contingent Benefits		Contingent Benefits	
Retirement Pension	41.5	Social Security	51.1
Unemployment Benefit	4.3	Unemployment Insurance	6.5
Invalidity/Sickness	5.6	Workers' Compensation	4.7
Child Benefit	11.5	Disability	5.3
Others	8.4	Medicare	11.5
	71.3		79.1
Means-Tested Benefits		Means-Tested Benefits	
Supplementary Benefit	17.1	Supplemental Security Income	2.6
Housing Benefit	11.2	AFDC	4.3
Family Income Supplement	0.4	General Assistance	0.5
	28.7	Medicaid	8.0
		Food Stamps	3.1
		Housing	2.5
			20.9

Notes: UK figures are for 1984/85 and are calculated from UK Government (1985); US figures are for 1980, and are calculated from Ellwood and Summers' (1986) listing of expenditures on major public assistance and social insurance programs.

other definitions of income testing. In his overview of income testing in the US, Garfinkel (1982) defines the term as follows:

> 'In non-income-tested programmes rich and poor alike participate. Eligibility does not depend on income. Nor are gross (before-tax) benefits related to income per se... In order to confine benefits to low income people, income-tested programmes reduce benefits as income rises... Consequently, income-tested programmes impose higher marginal tax rates on their beneficiaries than is imposed on the rest of the population to finance the programme.'

As Garfinkel notes, some social insurance programmes like unemployment insurance, while open to rich and poor alike, do have provisions which impose higher marginal tax rates on the poor than on the rich. Yet he classifies social insurance programmes as non-income-tested, presumably because the extent of income testing is small in these programmes. In their discussion of UK social insurance and income maintenance, Dilnot, Kay and Morris (1984) distinguish between contingent benefits and means-tested benefits. Contingent benefits are those which depend on socio-demographic characteristics such as retirement, marital status, whether there are children in the family, whether an individual is unemployed, etc.; there may be other restrictions such as

an adequate record of contribution to social insurance schemes. Means-tested benefits are those which, *inter alia*, require an assessment of the claimants' income and resources. The exact details vary from scheme to scheme, but the basic intention is to ensure that the claimants' total resources (including capital) are below a critical level. Only then is the claimant eligible for benefit.

2.2. The two systems

By far the largest single category of benefit in either country is the retirement pension, accounting for around 40% of the total in the UK, and around 50% in the US. Unemployment, sickness and invalidity are other large components of contingent benefits in both countries. However, two differences are clear from the table. First, in the UK child benefit accounts for over 10% of total expenditure, and there is no such category in the US (child benefit is an allowance, paid usually to mothers, for every child up to age 16, or 19 if the child is still in full-time secondary education). Second, in the US Medicare accounts for over 10% of total expenditure, and there is no such category in the UK. Medicare pays for the health costs of the retired and disabled in the privatized US health system, while this need largely does not arise in the UK's nationalized health care service. These distinctions warn us about the dangers of using formal and official classification systems in cross-national comparative studies. In the US support for child care is given through the tax system (as used to be done, partially, in the UK) while in the UK it appears as a public expenditure item. Similarly, in the UK the equivalent of Medicare expenditures are in fact undertaken but appear in a different set of accounts.

The major means-tested benefit in the UK is supplementary benefit, for those not in full-time work (and not involved in a strike). For such families, resources (including most other benefits) are compared with needs. These needs are specified as weekly rates for couples, single householders, non-householders, and children. If assessed resources are below assessed needs, and capital does not exceed a given amount, then the difference is made up in full. Any increase in income reduces payment one for one: in other words, the marginal tax rate is 100%.

Housing benefit is the other major item of means-tested expenditure in the UK. For those on supplementary benefit housing costs such as rent and mortgage interest are met in full. For those in full-time work whose income is below a certain level based on criteria which depend on household composition (but which differ from those for supplementary benefit), housing benefit is paid as a certain portion of rent and rates cost faced by the household; the benefit is reduced as income

increases. For those in full-time work and on low incomes, family income supplement is also paybable if there are children in the family. Again, the needs criteria are different from those for housing benefit and for supplementary benefit. Family income supplement is withdrawn at the rate of 50% per unit of increase in income, and therefore imposes this marginal tax on families who claim it; however, this item represents less than 1% of the total budget.

The major category of means-tested expenditure in the US is Medicaid, which pays for the health costs of those whose resources fall below a critical level (although the standard varies from state to state, and there are other eligibility criteria). There is no corresponding programme in the UK, and the only analogous provisions are where some recipients of supplementary benefit are excused some minor charges on the use of the nationalized health service.

The next largest category in the list of US means-tested benefits is Aid to Families with Dependent Children (AFDC). This programme illustrates vividly one of the big differences between the US and the UK. The UK system is essentially centralized, with levels of benefit being set by the government. The US system, however, has a large element of decentralization. The AFDC programme, for example, is jointly funded at the federal, state and local levels; as a result there is a large variation in payments. In 1981 the average benefit of a 4-person family in Mississippi was one-sixth of that for a 4-person family in Wisconsin (Schiller, 1984). These variations provide a series of 'natural experiments' on the effects of different rates. They are also the source of major inequities across geographical regions. Such geographical variation in criteria for direct payments is not a major feature of the UK system. The AFDC programme also reveals another major difference between the UK and the US. In the latter, there is a much more systematic attempt to distinguish between the 'deserving' and the 'undeserving' poor. The latter are largely thought of as able-bodied men who, for whatever reason, are out of a job. The AFDC programme is not, by and large, open to families with a male adult in them. (A substantial minority of AFDC payments are to black families headed by females.) This stands in contrast to the UK's supplementary benefit scheme, where anyone not in full time work is eligible to apply and will receive payments if the means test is passed.

Perhaps the most striking feature of Table 1 is what it reveals about the mix of contingent/means-tested benefits in the two countries. For both countries it is contingent benefits that form the dominant part of total expenditure, and it is this which has undoubtedly led to the targeting controversy on both sides of the Atlantic. By their very size the social insurance programmes do more to help the poor than the

means-tested programmes – but not necessarily per dollar spent. Comparing the two countries, we see that although for both countries means-tested benefits account for less than 30% of total expenditure, the UK puts more reliance on means-tested benefits than does the US. Now, this conclusion must be treated with caution because of the accounting problems mentioned earlier – child benefit has no counterpart in the US while Medicare and Medicaid have no counterpart in the UK. Clearly, more detailed comparisons would be necessary before this claim could be established with confidence (in fact, dropping child benefit, Medicare and Medicaid from the picture would further strengthen the conclusion as regards the UK's reliance on means testing). The picture presented in Table 1 would be surprising to some, given the popular view that means testing raises greater objections in the UK because of the strong memory of its insensitive application in the 1930s. However, to others the picture merely confirms the fact that in the US transfers are less redistributive than in the UK.

2.3. Effects on poverty

So much for the structure of the two systems: what about their impact on poverty? In order to answer this question we have first of all to specify poverty standards for the two countries. This is not the place to get into a debate about alternative conceptualizations of poverty, and translations of these concepts into operational measures. There is a large literature on this subject and the controversy is keen (see Townsend, 1979, 1985; Sen, 1983, 1985; Kanbur, 1986). My strategy here will be to identify poverty lines that are more or less 'official,' so that each system can be judged on its own terms – we can evaluate the extent to which the systems 'succeed' in terms of the standard that they set themselves. In the UK the chief candidate for such a poverty line is undoubtedly the supplementary benefit scale that parliament votes on every year – anyone not in work whose resources fall below the amount indicated by this scale is entitled to assistance. Whether this scale is 'adequate' or not is open to question. While the rates presented in Table 2 are exclusive of housing costs (which are met in full) some have argued that 120% or even 140% of these rates would be a more appropriate standard. In what follows I will use the supplementary benefit scale as coming closest to an 'official' poverty line. In the US the method of constructing the poverty line goes back to Orshansky's specification based on minimum expenditure on food to achieve a given diet, and a scaling up to take account of non-food expenditure. This line, established in 1965, has been corrected for inflation every year. Different family compositions have different lines, as shown in Table 3. However,

Table 2. UK: supplementary benefit scale rates (Nov. 1984) (£ per week)

	Ordinary	Long term
Couple	45.55	57.10
Single Householder	28.05	35.70
Non-Householder over 18 years	22.45	28.55
Non-Householder, 16–17 years	17.30	21.90
Child aged 11–15	14.35	14.35
Child aged under 11 years	9.60	9.60

Source: U.K. Government (1985).
Note: (a): The long-term rate is paid where claimant or partner is 60 or over; also (except to the unemployed), after receipt of supplementary benefit or long-term incapacity benefit for a year.

Table 3. US: official poverty lines (1982) ($ per year)

Size of family	Average poverty line
1	4,901
2	6,281
3	7,693
4	9,862
5	11,684
6	13,207
7	15,036
8	16,719
9 or more	19,698

Source: Schiller (1984), Table 1.5.

there has been no increase in this line in real terms, while for the UK the supplementary benefit scale rates have increased in real terms (see Hemming, 1984, Table 2).

Given these poverty lines, we now require data on income distribution to calculate the numbers in poverty. While the conventional wisdom is that the US does not care as much about poverty as does the UK, and this may indeed be true, official statistics on poverty in the US are far superior to those in the UK. Every year the US Bureau of the Census publishes a detailed analysis of the population below the poverty line (see US Bureau of the Census, 1984). In the UK the publication of official statistics on poverty is more sporadic and less detailed. As Atkinson, King and Stern (1984) note, 'the analysis at present made available by the government is however far from sufficient for this purpose. It consists of a handful of tables, produced every odd-numbered year.' Table 4 provides some information on the incidence of poverty in the UK and the US. The UK figures are all based on the

Family Expenditure Survey, and show that in 1981, 5.3% of all individuals in the UK lived in families in poverty. In fact, the figure is more than four times the incidence in the 1950s and about 50% higher than the incidence in the 1960s. Of course, as noted earlier the poverty line has been increasing in real terms. But this is not really the issue – the supplementary benefit scale is the line society has set itself and, by this standard, the 'safety net' lets through a significant number of people. The official measure of US poverty is based on comparing the poverty line with money income from public and private sources. While it can be shown that the incidence of poverty has a cyclical pattern (see Blank and Blinder, 1986), in comparison to the UK, it is much higher. Of itself this should not be surprising; I have not made any attempt to compare the levels of the two poverty lines and such an exercise would be fraught with problems. However, since the US poverty line has been kept constant in real terms since 1964, it is interesting to observe that despite real growth over the mid-60s to the mid-80s, the incidence of poverty in the US is roughly unchanged. Table 4 also presents figures for poverty incidence adjusted for in-kind transfers such as food stamps and Medicare. Not surprisingly, the poverty incidence is lower with these transfers, but is nevertheless above 10% in the 1980s.

How effective is each system in poverty alleviation? Effectiveness can be measured in many ways. One measure of success is to compare pre-transfer and post-transfer poverty. On this count there can be no doubt that the two systems do an enormous amount to alleviate poverty. Beckerman and Clark (1982) estimated that in 1975 pre-transfer poverty incidence would have been around 15.8% in the UK, while Danziger, Haveman and Plotnick (1986) estimate that in the same year the US pre-transfer poverty incidence would have been 22.0%. In 1983 in the US, pre-transfer poverty incidence was 24.2% compared to the post-transfer incidence (including in-kind transfers) of 13.0%.

However, while each system eliminates a large amount of pre-transfer poverty, the fact that even after the operation of the systems substantial numbers in each country remain poor is one measure of the lack of success of each system with respect to its own standards. One reason why the UK has a lower incidence of poverty than the US despite having a poverty line that has increased in real terms is that the UK spends a higher percentage of its GDP on 'social expenditures' (see Burtless, 1986). But is that the only reason? Is there a sense in which the UK uses its total budget more efficiently in targeting expenditures towards the poor?

We already have one indication that this might be the case – the UK spends a larger fraction of its budget on means-tested benefits. Table 5 confirms this indication for detailed analyses of the pattern of

Table 4. Poverty incidence (% of total population)

Year	UK	US	
		Official measure	Adjusted for in-kind transfers
1953–54	1.2	—	—
1960	3.8	—	—
1964	—	19.0	—
1967	3.5	14.2	—
1969	3.4	12.1	—
1971	4.9	12.5	—
1975		12.3	—
1981	5.3	14.0	11.7
1983	—	15.2	13.0

Source: For the UK: 1953–54 to 1975, Hemming (1984) Table 3-2; 1981, Atkinson, King and Stern (1984). For the US: Danziger, Haveman and Plotnik (1986), Table 3-1.

redistribution brought about by each system. As can be seen from the table, means-tested benefits typically involve smaller leakage to the non-poor than do contingent benefits. Overall, of the entire expenditure on transfers in the UK 54% goes to bring the poor up to the poverty line, while the figure for the US is 38%. This is despite the fact that in-kind programmes in the US such as food stamps have a high efficiency in reaching the poor. The reason is that such programmes represent a relatively small percentage of the total budget, while the large supplementary benefit programme in the UK, which accounts for over 15% of all expenditure, has close to 100% efficiency in reaching the poor, almost by definition.

3. The principles of targeting and transfers

3.1. Some general issues

As we have seen in the previous section, both systems can claim successes, and failures. They succeed in removing a large amount of pre-transfer poverty. Although the poor are still with us after the systems have operated, there are considerably fewer of them than in the free market outcome. However, the fact that some poor still remain must be counted as a failure of any system which purports to alleviate poverty. Another failure is that so much of the transfers goes to the non-poor. Could the systems do better, and what guidelines can economic analysis provide for policy reform?

Table 5. Transfers and leakages: % of total expenditure used to alleviate poverty

UK		US	
All transfers	54.0	All transfers	38.0
Pensions	58.8	Social security	41.0
Child benefit	21.8	Other non-welfare cash transfers	38.0
Unemployment and sickness benefits	41.1	Cash welfare	75.3
Family income supplement and rent and rate rebates	37.5	Food stamps	75.3
Supplementary benefit	100.0	Housing assistance	74.2

Sources: UK: Dilnot, Kay and Morris (1984), Table 2.4.; US: Weinberg (1985), Table 6.
Notes: UK: The analysis is based on the 1981 Family Expenditure Survey. The Benefits are introduced in the sequence given in the table, and contribution on income is assessed in that order; US: The analysis is based on the 1979 Income Survey Development Programme. The figures represent the efficiency of each item taken on its own.

Before attempting to answer these questions we should note that the approach here is to view the various programmes as ways of alleviating poverty. It can of course be argued that this is not the central aim of some of the programmes, that it would be too much to ask of a social insurance programme that it both provide adequate insurance and have a significant impact on poverty. However, it is clear from discussions on both sides of the Atlantic that poverty alleviation is indeed an important criterion in assessment of transfers, and that is the focus of this paper: the other objectives which programmes are meant to be achieving require a separate analysis.

Now, both systems have grown and expanded in an erratic fashion. Programmes have been added or removed in response to pressures or exigencies, without attention to the overall picture. Since many programmes are multi-purpose in nature, and since there are a large number of administratively separate but economically interacting programmes, much duplication of effort takes place in collecting and processing information. Sometimes the state takes away with one hand what it gives with the other. There is clearly scope for rationalization and improvement in the administration of the two systems, and much has been written about this. However, my object in this section is to go beyond the immediate administrative problems and ask the more fundamental question of how an ideal system might be designed. I wish to discuss the principles of poverty alleviation by transfers, taking into account the informational and budgetary constraints faced by policy makers.

In a very basic sense the system of poverty alleviation is directed towards those whose resources fall below their basic minimum needs.

Hence we might define deprivation as simply the difference between needs and resources. We are interested in individuals (or, more generally, in families and households) for whom this quantity is positive. The specification and valuation of needs is an intricate exercise, and clearly has a social dimension. What is seen as a need in one society may be luxury in another, and there is scope for endless argument about what constitutes the minimum standard. Also, because individuals differ greatly in their physical and psychological characteristics and because specifying a minimum level for each individual in the population would be an extremely costly exercise, the minimum is specified by socio-demographic grouping: for a family in the UK and US, poverty lines depend on size and composition. These lines are based on the amount of money required to meet certain basic standards of consumption. They do not allow for special needs (such as medical care for some handicapped people) nor do they allow for special events such as births or deaths. Given a specification of needs for each unit, a comparison with its resources will tell us whether or not deprivation exists.

But here we face another problem – what is meant by resources, and what is the relevant time period over which they are measured? If a family's income fluctuates from week to week, should we take the weekly average over a whole year? To some extent the answer to this question depends on the nature of opportunities for borrowing to smooth consumption over time. However, there is a more fundamental question about the extent to which positive deprivation in one period can be set against negative deprivation in the next: do good times cancel out bad times, especially when the bad times are so bad as to put you below the poverty line? I have tried to argue elsewhere (Kanbur, 1985b) that they do not, and will not go into the issues here. Suffice it to say that if we do take the other view, then the informational requirements for determining whether or not an individual is suffering deprivation in any period are severe, requiring, in principle, information on the entire stream of past and future incomes.

The *minimum* total amount of transfer required to eradicate deprivation is simply the sum of the difference between needs and resources for each household in the country. If members of the society (in particular those for whom resources exceed needs) are not willing to sacrifice this amount, then the poor really will always be with us. In fact, both in the UK and the US the total transfers exceed this 'poverty gap.' But poverty still persists because not all the poor are reached by the transfers and because much of the transfers go to those above the poverty line. This leads us on to the issue of targeting of transfers.

If there were no other costs involved, then the following would be the most 'transfer efficient' strategy for poverty alleviation: for each

unit with needs greater than resources, transfer the difference exactly, so as to eliminate deprivation. The actual operation of the two systems we have examined follows this procedure only to a small extent. The programme which comes closest to this rule is the UK's supplementary benefit scheme for those not in work. The systems, as we have seen, are a mixture of such means-tested transfers and social insurance transfers which do not necessarily depend on whether or not resources fall below a specified need criterion. Is such a mix a desirable strategy for poverty alleviation, given the efficient rule described above?

The answer depends, of course, on the costs of operating the efficient rule. There are two main costs of operating this rule. Firstly, it imposes a marginal tax rate of 100% on all those whose deprivation is positive. The economic costs of this depend on what economic decisions are affected – the effects on labour supply are often mentioned (see, for example, Blundell, Meghir, Symons and Walker, 1985; Burtless and Hausman, 1978). But departures from the 100% marginal tax rate can be achieved only at the expense of not eliminating deprivation for some people, or giving some units more than is necessary to eliminate deprivation. The former retains poverty; the latter increases the cost which has to be borne by those whose resources exceed their needs.

This in turn raises the economic question of the costs of raising these resources. Figure 1 shows these trade-offs in diagrammatic form. It focuses on income, assuming that a common poverty line can be drawn at income z. The tax schedule A gives everybody a guaranteed minimum income z, but has two marginal tax rates: 100% for those with pre-tax

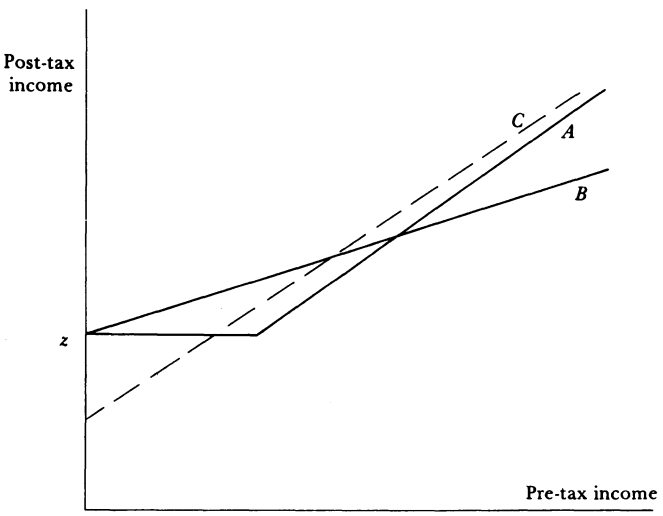

Figure 1. Possible tax-transfer schedules

income below z, and the marginal tax rate which balances the budget for those with income above z. Tax schedule B again gives a guaranteed minimum of z, but imposes a single marginal tax rate on everybody to balance the budget. As can be seen, comparing A and B, the marginal tax rate on the poor is lower in B, but that on the rich is higher. Tax schedule C has lower marginal tax rates than B, but at the expense of a lower exemption level, with the result that some individuals remain in poverty.

High marginal tax rates affect work incentives. Some poor people may reduce their work effort as the result of the tax schedule they face. To the extent that work effort falls, incomes fall and even more resources would be required to fill the poverty gap. This would mean an even higher tax rate on those above the poverty line – affecting their incentives adversely. But low marginal tax rates on the poor can only be accomplished either by lowering the income guarantee or increasing marginal tax rates on the rich. These conflicts are well recognized in the literature on both sides of the Atlantic. Dilnot and Stark (1986) provide empirical evidence for the UK, which shows that less than 2% of the 27.5 million or so tax units in the UK face marginal tax rates in excess of 60%. However, attempts to remedy this situation (especially marginal tax rates in excess of 100%–which are not rational in any setting) run into the difficulty that in doing so one either lowers the income guarantee or spreads high marginal tax rates over a larger segment of the population. They conclude their evaluation of the UK Government's (1985) proposals by noting that 'although the maximum marginal tax rate has fallen, the number with marginal rates in excess of 80% rises substantially.' A similar conclusion is reached by Schiller (1984) with regard to the AFDC programme in the US. The three objectives of income provision, work incentives and cost minimization, as he terms them, are in conflict. 'We cannot move in all three directions at once.'

3.2. Formal models of social welfare optimization

In order to arrive at a policy conclusion on whether the minimum income guarantee should be increased, and whether it should be financed by higher marginal tax rates on everybody or merely on the poor, we have to quantify the trade-offs involved. The best known method has been developed by Mirrlees (1971). It is presented in the Appendix and simply described here. The method asks what is the optimum income tax-and-transfer schedule which allows the government to balance its budget, inclusive of non-welfare related activities, while caring for the poor. The method explicitly recognizes that workers

value leisure, i.e. that high marginal taxes act as a deterrent to work effort. The government's aversion to inequality can be continuously varied from one extreme where no particular attention is paid to the poor, to the other where it cares only about the welfare of the very poorest, the so-called Rawlsian maximin outcome. Thus, all of the issues raised in Figure 1 are explicitly taken into account, but in addition the disincentive effect of taxes is recognized and the government's aversion to poverty is allowed to vary. Mirrlees solves this general problem but the solution does not provide unambiguous policy recommendations, nor does it allow one to appraise the quantitative trade-offs discussed in the previous section. Sharper results can be obtained for specific cases by restricting the form of the tax-and-transfer schedules to the linear cases shown in Figure 1. It is then possible to solve numerically for the optimum pattern of tax rates and ask how close to the actual picture this optimum pattern comes.

The case of schedule *C* on Figure 1 has been studied by Garfinkel, Moreland and Sadka (1986), using US data for 1975 which allows them to estimate the distribution of income by dividing up the population into quintiles for hourly wage rates. The results for the case where the government cares only for the poorest are presented in Table 6. The unit of analysis is heads of households and in 1975 the average level of non-welfare public expenditure per unit was $1,500. The main result is the very high optimal tax rate implied by the maximum rule: for the actual average level of non-welfare expenditure, the optimal marginal tax rate is over 70% which clearly does not represent the actual situation in the US or the UK. To what extent is this a feature of the specific form chosen for the tax-disincentive effect? An answer is provided by providing a rather more general representation of labour supply behaviour (see Appendix for details). When this is done, however, for realistic parameter values, if anything the optimal marginal tax rates are even higher. When social preferences put less weight on the poor's welfare, the results change, but only moderately.

Marginal tax rates in excess of 60% for the bulk of the population are recognized as a political non-starter. This may simply reflect a low concern for the poor in the population at large. However, it can be argued that by restricting discussion to a single marginal tax rate for everyone with income above the minimum guaranteed income, we do not allow for higher marginal tax rates on the poor: it effectively rules out the principle of targeting transfers as represented by schedule *A* in Figure 1. Targeted transfers instead imply a higher marginal rate on the poor than on the rest of the population. In an earlier paper, Garfinkel, Moreland and Sadka (1982) have calculated the optimal values for a schedule similar to *A* in Figure 1, except that they allowed

Table 6. Optimal marginal tax rate schedule and minimum income guarantee. Maxi–min social welfare function (all values in 1975$ and per unit)

Non-welfare expenditure	−1,000	0	1,000	1,500	2,000	3,000	5,000
Case 1 ($\delta = 1/4$)							
Marginal tax rate (%)	66.0	67.7	69.5	70.4	71.3	73.2	74.6
Minimum income guarantee	7,029	6,330	5,648	5,313	4,984	4,341	3,114
Case 2 ($\delta = 1/3$)							
Marginal tax rate (%)	62.0	64.0	66.4	67.6	68.8	71.2	76.4
Minimum income guarantee	5,799	5,130	4,482	4,167	3,858	3,261	2,160

Source: Adapted from Garfinkel, Moreland and Sadka (1986), Table II, skill distribution I.
Note: δ is the weight on leisure and $(1 - \delta)$ the weight on consumption in a Cobb–Douglas utility function (see Appendix for further details). These simulations correspond to schedule C on Figure 1.

Table 7. Optimal marginal tax rates and minimum income guarantee (1975$ per unit)

Non-welfare expenditure ($)	1,500	2,000
Maxi-Min social welfare function		
Marginal tax on the poor (%)	88	88
Marginal tax on the non-poor (%)	77	78
Minimum income guarantee ($)	7,776	7,404
Less extreme social welfare function		
Marginal tax on the poor (%)	58	70
Marginal tax on the non-poor (%)	51	48
Minimum income guarantee ($)	5,535	5,781

Source: Adapted from Garfinkel, Moreland and Sadka (1982), Table 8.4.
Note: The calculations assume a CES utility function with $\delta = 0.02$ and an elasticity of substitution of 0.5. The less extreme social welfare function assumes $\varepsilon = 0.6$ (see Appendix for further details).

for a (constant) marginal tax rate on the poor which may be lower than 100%. Thus the first portion of the schedule need not be flat and may be upward sloping, and different from the (constant) marginal tax rate and slope of the schedule for the rest of the population. When the tax rate on the poor exceeds the marginal tax rate on the rest of the population, income testing takes place according to Garfinkel's (1982) definition and the key question is whether this is optimal. The results for extreme poverty aversion and more moderate preferences are reproduced in Table 7. Once again, we see that the optimal marginal tax rates when the social welfare function expresses great concern for the poor are extremely high. The marginal tax rate on the poor turns

out to be 88%, while the rate on the rest of the population is 77% and the minimum income guarantee is $7,776 when the level of non-welfare income spending per unit is $1,500. Moreover, Garfinkel, Moreland and Sadka show that the differences in welfare between employing the two tax rate schedules and the single tax rate schedule are not very large.

It would appear, therefore, that the approach of social welfare maximization does not support a regime of large differentials in marginal tax rates between rich and poor. There is room for debate since the results depend on the labour supply elasticities, which can be challenged, and on the degree of poverty aversion which is a matter of value judgement. But by and large the results are not conclusively in favour of the sort of differentially high marginal tax rates we now observe on the poor.

3.3. Minimization of a poverty index

The approach discussed in Section 3.2 might be described as the dominant one in exercises that attempt to quantify the trade-offs between equity and efficiency in the design of tax and transfer systems. However, it should be noted that there is a major difference between the sorts of social welfare functions used in these calculations, and those implicit in the poverty lines discussed in Section 2. Poverty lines, around which there is great policy debate, rely on a cutoff level of income which divides society into poor and non-poor. Sen (1981) codifies this as a 'focus' axiom – the poverty index simply ignores all those above the poverty line; yet we would like to care about the 'quasi-poor' – those just above the line – especially as they are affected by policy measures designed to help those with possibly slightly lower incomes. The approach of Section 3.2 does not do this: as poverty aversion increases it gives more and more weight to the lower end of the distribution, but it does not, indeed cannot, represent the sorts of poverty indices that are usually discussed in the policy literature. The discontinuity implicit in poverty indices may not appeal to some. However, it is worth asking what the analysis would be like if the sorts of indices that policy makers actually use were the direct focus of the policy reform evaluation. Yet another divergence between the social welfare maximization exercises of the literature and the policy debate is that, while in the former social welfare is defined on individual utility, in the latter poverty indices are defined on individual income. Poverty indices, as usually calculated and discussed, therefore do not take the value of leisure into account.

Typically, poverty indices consist in computing some average measure of deprivation by setting individual needs as defined above at the agreed upon poverty line z as shown in Figure 1. For each unit, the normalized

poverty gap is defined as follows:

$$\text{Poverty gap} = \begin{cases} 0 \text{ when } y \text{ is greater than } z \\ (z-y)/z \text{ when } y \text{ is less than } z \end{cases} \quad (1)$$

where y is the post-tax-and-transfer income of the unit (as measured on the vertical axis of Figure 1). Foster, Greer and Thorbecke (1984) have proposed defining a poverty index, P_a, as the average of these poverty gaps raised to some power a, across householders.

The parameter a reflects the degree of aversion to the depth of poverty. For example, when $a = 0$ the poverty index does not take into account the size of existing poverty gaps – it is simply the proportion of units below the poverty line. When $a = 1$, by contrast, it is just the proportion of units below the poverty line multiplied by the average poverty gap. As the parameter a increases beyond unity, the index P_a becomes more sensitive to the poverty gap of the poorest among the poor.

A useful question in the spirit of public discussions is whether the poverty index can be reduced by raising simultaneously the minimum income guarantee and the (supposedly constant) marginal tax rate so as to keep the budget balance unchanged. Details of the computations are shown in the Appendix. Broadly, the increase of the minimum income guarantee naturally reduces poverty; on the other side, the higher marginal tax rate tends to increase poverty, although in both instances the incentive effect on the supply of labour and therefore earned incomes has some offsetting effects. If we assume a particularly convenient (Cobb–Douglas) form of the income-leisure preference of households and consider the case where $a = 1$, two polar cases emerge. In the first case, the minimum income guarantee is close to the poverty line and the reform does reduce the poverty index. In the second case, the minimum income guarantee is significantly below the poverty line and the reform actually increases poverty. In this latter case, one could instead envision a lowering of the marginal tax rate along with a reduction of the minimum income guarantee. For example as shown in the Appendix, when the minimum income guarantee is initially half the mean post-tax-and-transfer income of the poor (and with the same income-leisure preferences as used in Table 6) it turns out that a marginal tax rate of 50% is too high: lowering it will reduce poverty as measured by the poverty index P_a with $a = 1$.

3.4. Targeting via contingencies

In the discussion so far we have restricted ourselves to operating with a single tax schedule. Suppose now that we could divide the population

into two groups and operate separate tax schedules on each group. We must be able to do better – at worst we could simply ignore the extra degree of freedom that we have. This is where the use of contingencies comes in. For those who are retired, work incentives are not that important. We could apply a tax schedule with a high marginal tax for them, which would allow us to get away with lower marginal tax rates on the working population, while at the same time maintaining the income guarantee for both groups. Akerlof (1978) referred to this as 'tagging' in his discussion of American negative income tax proposals, while Dilnot, Kay and Morris (1984) provide a diagrammatic illustration of the benefits of this extra information.

Of course the extra information is valuable only to the extent that its cost is less than its benefit. The costs of this new information lie both in its administrative aspects – we now need to know not only an individual's income but also his or her contingency – and in the fact that if tax schedules are determined by contingency, there may be incentives to acquire the characteristics of that contingency. It has been argued by many, for example, that the introduction of AFDC was important in the separation of many families, since that benefit was geared to families without a male head (Murray, 1984). While Ellwood and Summers (1986) argue against this specific hypothesis on empirical grounds, the general point still stands. There is no easy resolution of the conflicts in alleviating poverty by transfers. The use of indicators other than income merely shifts the realm of feedback effects; it cannot eliminate them. The use of unemployment as a contingency, for example, may well discourage job search and sustain a high level of unemployment. Although the evidence here is again mixed (Minford, 1983; Layard and Nickell, 1986) the debate should stand as a warning to those who expect to get 'something for nothing' from indicators other than income.

A general and formal analysis of the optimal use of contingencies in the design of income maintenance programmes is beyond the scope of this paper. However, consider the situation where each contingency attracts a fixed, lump-sum transfer – like state pensions for the retired, unemployment benefit, child benefit, etc. In such a setting, can the allocation of resources between different contingent transfers be improved in order to alleviate poverty at a lower cost, taking into account the leakages involved? Again a formal analysis is presented in the Appendix and its results presented here. We consider two non-overlapping contingencies, e.g. retirement and unemployment: people in each of these contingencies receive a different minimum income guarantee and face a different marginal tax rate. We then consider a reallocation of transfers between these two contingencies, with no change in the

marginal tax rates but such that the budget balance is unchanged so that one group receives exactly what the other loses. We want to know the effect of this reallocation on poverty as measured by our poverty index.

A simple rule emerges when $a = 1$ and if we ignore the incentive effect on the supply of labour. Then the rule says that if the objective is to minimize the poverty gap, retarget towards the contingency with the highest incidence of poverty. We can explain this by reasoning as follows. Raising the benefit for a contingency by £1 will cost £1 times the number of people in that contingency. The impact on the poverty gap will be £1 times the number of people in that contingency who are poor (we recognize that a number of people close to the poverty line will cross the poverty line and stop being poor; but the contribution of these to the poverty gap – since they are so close to the poverty line – is small enough to be ignored). The 'poverty alleviation efficiency' of transfers to this contingency can be measured by:

$$\frac{\text{Reduction in Poverty Gap}}{\text{Increase in Expenditure}}$$

$$= \frac{\text{amount of transfer} \times \text{number of poor people in the group}}{\text{amount of transfer} \times \text{number of people in the group}}$$

$$= \frac{\text{number of poor people in the group}}{\text{number of people in the group}}$$

$$= \text{incidence of poverty in the group} \qquad (2)$$

Thus if our objective is to reduce the national poverty gap with a fixed budget we should redirect resources to those contingencies which show the highest incidence of poverty. It should be noted that this measure differs from the standard measure of the target efficiency of a programme, which looks at the ratio of total expenditures going to those below the poverty line, as shown in Table 5. In contrast to this average measure of target efficiency when the objective is the poverty gap, the incidence gives us an indication of efficiency at the margin, which is obviously the relevant criterion for policy decisions.

Now, the above formulation is clearly too simple for detailed application in practice because of several restrictive assumptions, particularly the linearity of the tax system. Some extensions to the basic framework are given in Kanbur (1985a), but as a first stage the above budgetary rule should prove useful in identifying high priority contingencies for transfer increases. Table 8 provides some information on the proportion of pensioner families, families with unemployed head and families with children in the bottom quintile of the equivalent income distribution in the UK. Ideally we would like to calculate poverty incidence by

Table 8. UK: percentage of families of different types in bottom 20% of equivalent income[a] distribution

	1971	1981
Pensioners	42.0	23.0
Families with Unemployed Head[b]	35.1	63.5
Families with Children[c]	15.0	21.1

Source: Calculated from UK Government (1985)
Notes: (a): Income per equivalent adult in household; (b): For couples we treat the male as head of household; (c): Includes one-parent families as well as couples with children.

reference to the supplementary benefit scale, but comparison at the level of detail we require was not available to me. Although it is doubtful that the picture would be significantly different, caution is urged in interpreting this table, which should be taken as an illustration of the basic argument.

As can be seen, the incidence of low incomes among units with children is the lowest of the three, but has risen. The really dramatic changes have come in the comparison between pensioners and the unemployed. In 1971 our budgetary rule would have favoured pensioners over the unemployed. In 1981 the situation is reversed. With a given total budget, national poverty could have been reduced by redirecting resources away from contingent benefits for pensioners and towards contingent benefits for the unemployed. As for child benefit, its target efficiency at the margin is seen to be low; in 1981 there was not much to choose between that and pensions, while unemployment benefit clearly dominated by a large margin. If, instead of incidence of low income among family units, we took incidence of low income among individuals, these comparisons would tend to be modified since units with three or more children have higher incidence of low income than units with fewer children (see UK Government 1985; Tables 1.8 and 1.9). It is unlikely, however, that the general message would be altered radically.

When labour supply is elastic, we have the problem of including comparisons of leisure across individuals with different incomes. Kanbur and Keen (1986) discuss several approaches to this problem. In what follows I restrict attention to net income and effectively ignore leisure in the measurement of poverty, which is what official measures of poverty do. In any event, with elastic labour supply we have to take into account the effect of changes in minimum income guarantees on incomes in the two groups, and on net revenue. As before we ask which group should be favoured in a balanced budget retargeting, now taking

into account labour supply effects. In the simple case where labour supply is still inelastic for the first group (e.g. retired people) but not in the other one we find that the answer depends again on the relative incidence of poverty in the two groups. For example, with a marginal tax rate of 33% applicable to the second group (the one with elastic labour supply), poverty incidence in that group would have to be one and a half times higher than in the first group (the retired people) for the poverty gap measure at the national level to be reduced by retargeting in favour of the second group. With a marginal tax rate of 50% the incidence in the second group would have to be two thirds higher than that in the first group for this retargeting to be beneficial. On these sorts of numbers, the figures in Table 8 do not indicate that a balanced budget retargeting from pensioners to families with children would necessarily reduce measured poverty.

3.5. Welfare stigma

Another cost of the 'transfer-efficient' rule discussed in 3.1 arises from the social stigma attached in the UK, the US, and many other societies, to claiming from schemes designed to bring people up to the poverty line. Means testing is a charged phrase in the UK. In the US where the phrase itself does not have the same connotation, the stigmatization that accompanies means-tested programmes is well recognized (Garfinkel, 1982, Moffitt, 1983). It is argued by some that the means-testing problem is not, or ought not to be, a 'problem':

> 'It is clear that rational objection is not to means tests as such. The battle over whether the state could properly enquire into the resources of its citizens is one which was fought, vigorously, in the early nineteenth century when income tax was introduced, and re-echoed at the beginning of the twentieth century when the tax became progressive. No one now disputes that this kind of investigation is both proper and necessary. What is offensive are specific and potentially humiliating enquiries into the affairs of poor households which discriminate between them and the population as a whole.'
>
> (Dilnot, Kay and Morris, 1984).

That there is a problem with regard to means-tested benefits is clear. Bassi (1986) estimates that in 1979 only 63% of eligible families received AFDC in the US. In the UK, the take-up of supplementary benefit is estimated at around 70%, and the rates for other benefits are lower (see Atkinson, King and Stern, 1984; Dilnot, Kay and Morris, 1984). While in the US the persistence of poverty can be explained both by lack of take-up and by the fact that large sections of the population (for

example poor households with male heads) are not adequately covered by the existing transfer programmes, in the UK the persistence of poverty is to a large extent due to non-take-up of benefit.

How is the take-up problem to be solved? It is clear that the causes of the problem are rooted in the socio-historical make up of a society. Certain types of transfers are thought to be stigmatizing; others not. Certain types of inquiry into resources are thought to be demeaning; others not. Some of the proposals for the reform of the UK system attempt to channel transfers to the poor through programmes which do not, in the social psyche, have such stigma attached to them. Atkinson (1969, 1985a) attempts to use the social insurance system to expand transfers to the poor. Receipt of a retirement pension or unemployment benefit is not thought to carry the stigma of needs-based, means-tested transfers. These benefits go to many above the poverty line, and there is a feeling that individuals have contributed to the scheme and that they receive payments 'as of right.'

Dilnot, Kay and Morris (1984) point out that in fact there is very little left of the insurance element in the social insurance schemes – that public attitudes are based on an illusion. Instead, they suggest making the transfers through the tax system by incorporating taxation and transfers into an integrated scheme. Using public acceptance of the tax system to remove the stigma of transfers to the poor is also, of course, open to the charge that it will be based as much on an illusion as social insurance transfers. The real issue is the extent to which the non-poor do indeed wish to make transfers to the poor.

In the US it seems clear that within the means-tested programmes there is a preference for in-kind transfers such as food stamps or Medicaid, and that these have expanded fastest in recent years. Since an income and resources test is required for both, it cannot be argued that these in-kind transfers avoid the problems of 'cheating' that might arise in cash transfer programmes. Rather, the support for in-kind transfers is based on their political acceptance by the non-poor – transfers restricted to purchases of food for the poor are more appealing than cash transfer in general, even though an economist would argue that the individual's welfare would be greater with the latter than with an equivalent amount of the former.

In fact some have argued against substantial integration of the different programmes into a single tax and transfer scheme like the negative income tax, since a multiplicity of programmes can better resist an attempt at cutbacks one by one, while a single integrated programme might be more vulnerable. These political issues in integration have not been studied in detail in the UK, although Atkinson (1984) half raises the issue when he asks whether with an integrated tax-benefit

system, the Chancellor of the Exchequer would speak with two voices. (Some other arguments for 'incrementalism' in the context of US policy are put forward by Nathan, 1977.)

It is ironical (though not surprising) that the very reason why social insurance programmes enjoy support, and do not have stigma attached to them, is that they are not targeted at the poor. More intensive use of these programmes for poverty alleviation will therefore deal with the take-up problem, but at the cost of making large transfers to non-poor. Such contingent transfers rely on the contingency being well correlated with poverty – but not so well that, in effect, the transfer becomes a needs-based programme. More intensive use of means-tested transfers leads to higher marginal tax rates on the poor, but also a reduction in the rate of take-up. These basic trade-offs cannot be escaped, and lie at the core of the discussions on both sides of the Atlantic. (See Garfinkel, 1982 and Atkinson, 1985b.)

4. Transfers and poverty: the policy dilemma

Poverty can be alleviated through transfers only to the extent that the non-poor are willing to sacrifice the resources to do so (for a recent analysis of public attitudes in the UK see Golding, 1986; for the US see Heclo, 1986). This truth is also the basis of the policy dilemmas on which so much has been written in both the UK and the US. It is present in the 'iron triangle' of (i) high marginal tax rates on the poor, (ii) high marginal tax rates on the non-poor (iii) adequate income guarantees for the poor. It is only to the extent that society is willing to bear the costs of (i) and (ii) that the costs of (iii) can be met and the triangle broken.

The dilemma of whether to change the mix of programmes to increase the extent of means testing also has at its base the willingness of the non-poor to make sufficient transfers to alleviate poverty. It is argued that both systems 'waste' resources by not using sharper targeting. Dilnot, Kay and Morris (1984) estimate that in 1981, out of a social security and income maintenance expenditure total of £25,857 million around £11,894 million went to the non-poor. This amount was 'wasted' so far as poverty alleviation is concerned. They argue for sharper targeting by more intensive means testing (through an integrated tax and transfer system), so that the total of social security expenditure can be used more efficiently.

Quite apart from the fact that sharper targeting may imply higher marginal tax rates on the poor, with the associated economic inefficiencies discussed in the previous section, the underlying political assumption behind the above argument is that the total of social security expenditure is what the non-poor wish to see transferred to the poor;

that it is only the inefficiency of the current transfer system which prevents all of this amount from being used to alleviate poverty. But there is another way of seeing these figures – that in fact the non-poor only wish to transfer the net amount £13,963 million to the poor; that attempts to retarget the remaining £11,894 million (which now goes to the non-poor) would be resisted. Such an argument is recognized explicitly in the US literature, where it is estimated that in 1979 of total transfers of $13,468 million only $5,117 million was actually transferred to the poor (Weinberg, 1985), but it is argued that the popularity of the loosely targeted social insurance schemes lies precisely in the fact that many of the benefits go to the non-poor (see Burtless, 1986). The 'social stigma' of claiming means-tested benefits, in contrast to the 'as of right' perception of social insurance benefits, may lie in a social illusion that in the case of the latter contributions earn payments through an insurance principle. Dilnot, Kay and Morris (1984) hint that such a divorce of social perception from reality is a slender reed on which to build a poverty alleviation system. But in fact there are good reasons why we might believe that such non-means-tested benefits will continue to be popular – they make large transfers to the non-poor and as such are a reflection of the net transfers the non-poor wish to make to the poor.

The social security and income maintenance systems of the UK and the US present a mosaic of different types of schemes with different emphases and different socio-political origins. There are irrationalities and inconsistencies in both systems and much has been written about reforming them and streamlining their operation. However, it may be that the systems as they stand are in fact reflections of the net transfers the non-poor wish to make to the poor. No matter what technical improvements are proposed in the two countries, their effects are likely to be small in the face of unwillingness to redistribute incomes sufficiently to eradicate poverty. This is the basic truth, and it is the basic dilemma.

Discussion

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This paper provides a useful and clear summary account and raises many of the basic issues such as the conflict between the size of the 'minimum' level of income to be provided and marginal tax rates, between targeting and high marginal rates/means testing, and whether the political will to do more is there. But, I think, it fails to ask many

of the important questions and thus I do not think we learn as much as we might have done from the comparison. I shall try to pull out some of these questions in my discussion.

The first section is concerned with a comparative description of expenditure on transfers and it is apparently assumed that the major objective is poverty alleviation. The expenditure figures in the paper are then compared subsequently in terms of whether or not they meet the objective. But the expenditure described is *not simply about poverty alleviation.* The possible purposes could usefully be discussed and compared across countries in terms of how they are articulated, their historical evolution and how they are now seen or, in fact, operate. How far is the expenditure concerned with (a) rights as citizens or human beings, (b) insurance, (c) equity? One can argue that we all have basic rights to minimal protection from sickness, or to primary education, or to housing; these can be provided either by free provision or by transfers for payments under these headings – the methods are conceptually close although different in important respects. Rights cannot sensibly be established simply by asserting them but they must be taken seriously in this subject. Under (b) one can think of a state-run insurance scheme (*a la* Beveridge) where the state makes transfers but acts like a big insurance company (with the possible efficiency of pooling of risk and of organization) e.g. the old age pension and unemployment insurance have often been considered in this way in the past. Under (c) we may think of transfer schemes designed to promote horizontal equity. For example, Child Benefit in the UK replaced tax allowances for children which were supposed to allow households with equal 'real' income to be treated equally. And vertical equity is about the distribution of real income and not about numbers who fall below some arbitrary line (I shall return to this). The three concepts are inter-related and relate to poverty but need more careful discussion.

A comparison of the systems in terms of origins and designs could have illuminated the role of these different elements. It is possible that the two systems had origins in the three concepts described but are now simply about poverty. But such a claim should be justified, not assumed, and until objectives are established a discussion of 'efficiency' cannot proceed. A careful discussion of these objectives might also lead us to look at outcomes not simply in terms of incomes which fall below certain levels but more basic questions such as longevity, health and housing, and educational achievement which are nowhere near perfectly correlated with income.

The second and third issues I should like to raise concern specific points on the comparative description. I would like to have *added* free

health treatment in the UK into the comparison. It is a non-means-tested, in-kind benefit. This would have made a big difference to the comparison of the degree of means testing and would, I guess, have made the proportions of US and UK means-tested in total benefits quite close. The 'Current grants to the personal sector' of the general government under the 'Social Security' heading in the UK national accounts for 1984 was £37.4 billion (Blue Book, 1985, p. 70). Taking Kanbur's figure of 28.7% (Table 1) for the means-tested proportion we have a means-tested element of £10.7 billion. The 'Health Expenditure' of general government for 1984 (also Blue Book, 1985, p. 70) was £16.8 billion. If we include this as a non-means-tested benefit with the £37.4 billion we have total expenditure on benefits of £54.2 billion of which the means-tested proportion, £10.7 billion in £54.2 billion, is now 19.7%, which is lower than the US figure of 20.9% which Kanbur gives in the same Table. One can no doubt discuss further the appropriate way of including these health benefits in the calculations but it should be clear that the omission of these benefits in the UK seriously biases the picture.

I would have liked some comparisons of the levels of the poverty line in the two countries. Using the World Bank Development Report for 1986 US GNP per capita in 1984 was $15,390 and for the UK was $8,570. The poverty line for a couple using Kanbur's figures (see Tables 2 and 3 of the paper) in the early 1980s both seem to be around 40% of GNP per capita. This is quite striking in itself but more so since the US line has apparently stayed constant in real terms since 1965. The growth of US GNP per capita has been around 1.8% p.a. so in 1965 the poverty line for a couple must have been around 55% of GNP per capita. Is this really true? It seems very unsatisfactory simply to take the levels as targets which a society sets itself, and then to judge success with respect to those targets without examining the targets themselves.

Let me now turn to the effects of policy on poverty. There is excessive emphasis on 'leakage' and how much goes to the non-poor of any type of transfer. I would have placed as much emphasis on the poor and *who they are and how they slipped through any 'safety net'*. Is it, for example the absence of support for able-bodied males which accounts for the higher incidence of poverty in the US? Or should we focus on special aspects of take-up in understanding the differences? This kind of comparison can help us in the design of a system. Why, for example, (Table 8) has the incidence of poverty among the unemployed gone up in the UK? Is it due to the abolition of the Earnings Related Supplement? Just as policy towards the poor cannot sensibly be formulated without asking about its effects, including incidence, so also its design and analysis must consider how the poverty came about.

Let me now return to objectives and how they should come into the analysis of the effects of programme. Poverty indices of the sort considered by Kanbur have the feature that we would be prepared to sacrifice an infinite amount of income of any of those above the poverty line for an infinitely small increase for any of those below. I suspect that few would genuinely subscribe to these values. One might argue that we care very little about redistribution amongst the less poor but this is not to say that social marginal utilities are zero (although some, such as Rawls 1971, would appear to argue this).

In my judgement the drawing of a single line can often confuse rather than clarify the analysis of income distribution and transfers. It is frequently a line where the income distribution is rather dense, so that small movements in it can create big differences in numbers, leading to excessive emphasis and controversy concerning differences in measurements and definitions which may be rather minor. This is particularly true in developing countries. But the main complaint is that it diverts our attention from the central points which concern standards of living and redistribution between people at different levels of real income. We should not simply look at redistribution between those on either side of an arbitrary line.

And these remarks should not be confused with an absence of concern for the poor. The opposite is the case and my worry about poverty lines is precisely that by lumping together large groups at the bottom of the distribution they divert attention from differences amongst the poor which are often critical. A second worry, but not one which can be developed here, concerns the relationship between money income and standard of living (including health, housing, education and so on) but that will take us further afield.

Before leaving this point let me stress that I can see value in a poverty line from the political or administrative perspective. It is in terms of the economic analysis of policies that I find it unhelpful.

I found the analysis much too focused on single policies and the idea that this tool was better than that for poverty alleviation. It is usually the combination of policies that is crucial in terms of resources, political acceptability, incentives, distribution and so on. For example, abolishing the married man's allowance and doubling Child Benefit (both worth around £5 billion) would make relatively few in poverty worse off (mainly childless working couples on low pay) and would have few serious disincentive effects. It is also true that the level of Child Benefit affects the appropriate indirect tax structure. Deaton and I have shown (1986) that if we have the optimum system of grants based on family structure, linear Engel curves and separability between leisure and goods, then indirect taxes should be at uniform proportionate rates.

Without this optimum system of grants we would want to tax more heavily those goods consumed by poorer households. Thus I would have liked more analysis both of packages and the inter-relations between policies.

Finally, the argument that there should be 'integration' of tax and social security systems to avoid stigma and improve consistency is in some respects persuasive but has been insufficiently thought out. There are many differences between the tax and social security criteria which cannot simply be written off as historical accidents or contrariness. For example, in the UK the definition of *marriage* is typically different, with legal marriage critical for the tax system but common law marriage or cohabitation for social security. Further, the *time period* is different, with the tax system based on annual income and social security often determined weekly. And the concept of *unit or household* varies, with housing benefit taking into account the contribution of those in a household who may be from a different tax unit.

General discussion

John Kay argued that it was wrong to use the level of supplementary benefit as a poverty line, as this measure was not based on needs. For example, the long-term rate paid to pensioners was much higher than the short-term rate, and this had the effect of overstating the number of pensioners who were defined to lie below the poverty line. Instead, Kay said that he had some sympathy for Townsend's notion that people are poor when they do not have access to things that are regarded as 'normal' by society.

Kay was also critical of the notion that schemes to redistribute incomes were less objectionable if they were called social insurance schemes because it made them seem less like charity. Did people really suffer from such an illusion? Survey evidence in fact suggested the primary illusion that people in the UK were under was that National Insurance contributions financed the National Health Service!

Martin Hellwig pointed out that Kanbur's result, that the proportion of benefits that were means tested was higher in the UK than US, was sensitive to the treatment of pensions. A correct treatment of pensions would treat only the transfer component as benefits and not the savings or insurance element. Hellwig was also unhappy with the conclusion that the US transfer system was less efficient because there appeared to be more poverty there. One also needed to allow for differing political objectives. It was likely that the US government put a lower priority on alleviating poverty.

John Black emphasized that official figures regarding poverty should be treated with caution because of the existence of the so-called 'black economy'. Also people's willingness to pay for poverty alleviation was conditioned by their perception of the validity of the figures and the belief that many of those claiming benefit were in fact cheating the system.

Gerhard Fels said that it should never be forgotten that social security schemes could often actually generate poverty through their disincentive effects.

Appendix: Formal optimization models

1. Social welfare optimization

Let w be the wage rate per unit of labour supply and h the labour supplied; then the individual's pre-tax income is:

$$y = wh + N \tag{A1}$$

where N is non-labour income. The government imposes a tax and transfer schedule $t(y)$ which leads to post-tax and transfer income

$$y^* = y - t(y) \tag{A2}$$

Given (A1) and (A2) the individual chooses labour supply to maximize a utility function which depends on post-tax income and labour supply:

$$\max_h U(y^*, h) \quad \text{subject to } y^* = y - t(wh + N) \tag{A3}$$

giving individual optimal labour supply as

$$h = h(\{t(\cdot)\}, w) \tag{A4}$$

and the maximized value of utility as

$$V = V(\{t(\cdot)\}, w) \tag{A5}$$

both shown to depend on the tax function $t(\cdot)$ and the individual's wage rate per unit of labour supply.

We assume that there is a distribution of w in the population, reflecting different earnings capacity of different individuals. The government maximizes a social welfare function which depends on the utility of each individual, weighted according to its value judgements. One particularly convenient formulation of the social welfare function is:

$$W = \int_{\underline{w}}^{\bar{w}} \frac{V^{1-\varepsilon}}{1-\varepsilon} f(w)\, dw \tag{A6}$$

where $f(w)$ is the density of w in the population and ε reflects the

degree of inequality aversion. As ε tends to zero, W becomes a simple sum of the Vs in the population. As ε tends to infinity, W reflects the utility only of the poorest person – the so-called Rawlsian Maxi–Min outcome. Obviously, then, higher values of ε reflect greater concern for the poor, and it is interesting to ask how optimal design of policy changes as concern for the poor intensifies.

Mirrlees (1971) solved the general problem of maximizing (A6) subject to its budget constraint by choice of $t(\cdot)$, using variational methods. The simulations reported in the text (Section 3.2.) use either a Cobb–Douglas utility function (Table 6):

$$U(y^*, h) = (y^*)^{1-\delta}(\bar{h} - h)^{\delta} \tag{A7}$$

or a CES version (Table 7):

$$U(y^*, h) = [(1-\delta)(y^*)^{\rho} + \delta(\bar{h} - h)^{\rho}]^{1/\rho} \tag{A8}$$

The tax function is restricted to the linear form:

$$y^* = G + (1 - t_1)y \tag{A9}$$

where G is the minimum income guarantee. Finally, B denoting the amount of revenue per head needed for other areas of government activity and $\bar{y}$ the pre-tax income per head, the government budget constraint is:

$$-G + t_1\bar{y} = B \tag{A10}$$

Using (A8) instead of (A7), with $1-\delta = 0.98$ and 0.995, and $\sigma = 1/(1-\rho) = 0.4$ and 0.5, (values derived from Stern's, 1976, interpretation of the labour supply functions estimated by Ashenfelter and Heckman, 1973), Garfinkel, Moreland and Sadka (1986) find higher optimal marginal tax rates than those reported in Table 6. For example, with $1-\delta = 0.98$, $\sigma = 0.5$, $B = 1{,}500$, they find t_1 around 70% for $\varepsilon = \infty$ and above 50% for $\varepsilon = 0.6$.

For Table 7, the tax schedule is defined as:

$$y^* = \begin{cases} G + (1-t_1)y; & y \leq K \\ G + (t_2 - t_1)K + (1-t_2)y; & y \geq K \end{cases} \tag{A11}$$

2. Minimization of a poverty index

We write $y^* = y^*(w)$ to show the dependence of post-tax income on the wage rate. Then the poverty index used in Section 3.3. is defined as:

$$P_{\alpha} = \int_{\underline{w}}^{\hat{w}} \left(\frac{z - y^*}{z}\right)^{\alpha} f(w)\, dw; \quad \alpha \geq 0 \tag{A12}$$

where $\hat{w}$ is such that:

$$z = y^*(\hat{w})$$

i.e. it is that value of the wage rate which cuts off the poor from the non-poor.

When $\alpha = 0$, (A12) collapses to:

$$P_0 = \int_{\underline{w}}^{\hat{w}} f(w)\, dw \tag{A13}$$

which is simply the fraction of units below the poverty line – the incidence of poverty. When $\alpha = 1$ the number of the poor is combined with the poverty gap of the average poor person:

$$P_1 = \int_{\underline{w}}^{\hat{w}} \left(\frac{z - y^*}{z}\right) f(w)\, dw$$

$$= P_0\left[1 - \frac{\bar{y}_p^*}{z}\right] \tag{A14}$$

where $\bar{y}_p^*$ is the mean post-tax income of the poor.

Consider, then, an increase in the marginal tax rate in tax function (A9), accompanied by an increase in G to balance the budget. From (A12) we get:

$$\frac{dP_\alpha}{dt_1} = \int_{\underline{w}}^{\hat{w}} \left(\frac{\alpha}{z}\right)\left(\frac{z - y^*}{z}\right)^{\alpha - 1} \times \left[wh - (1-t)wh_{t_1} + (1-t_1)wh_G \frac{dG}{dt_1} - \frac{dG}{dt_1}\right] f(w)\, dw \tag{A15}$$

where h_t and h_G are the responses of labour supply to increases in the marginal tax rate and the minimum income guarantee. We get dG/dt_1 from the budget balance equation (A10).

While complicated, expression (A15) can be evaluated for specific labour supply functions. For the labour supply function generated by the Cobb–Douglas utility function (A7) it can be shown that (A15) collapses to:

$$\frac{dP_\alpha}{dt_1} = \frac{\alpha}{1 - t_1}\left\{\frac{z - G(1-\delta)}{z} P_{\alpha-1} - P_\alpha\right\} - \frac{\alpha}{z} P_{\alpha-1} \frac{dG}{dt_1}(1 - \delta) \tag{A16}$$

Thus the response of poverty P_α to budget-balancing changes in the marginal tax rate depends, among other things, on the current value of $P_{\alpha-1}$, which is the poverty index with a value of poverty aversion

$\alpha - 1$. When $\alpha = 1$ we get that $P_{\alpha-1} = P_0$, and using (A14) we come to:

$$\frac{dP_1}{dt_1} = \frac{P_0}{1-t_1}\left\{\frac{\bar{y}_p^*}{z} - \frac{G(1-\delta)}{z}\right\} - \frac{P_0}{z}\frac{dG}{dt_1}(1-\delta) \tag{A17}$$

The first term on the right hand side captures the effect on poverty of an increase in t_1; since the mean income of the poor must lie between G and z, it confirms that increasing the marginal tax rate must increase poverty. The second term captures the decrease in poverty that is made possible by an increase in G; if government revenue is increasing in t_1, dG/dt_1 will be positive and hence poverty will be reduced. If G is close to z, i.e. $\bar{y}_p^*$ is close to G, then the impact on poverty of an increase in the marginal tax rate is low and (A17) will tend to be negative. On the other hand, if G and z differ greatly, so that $\bar{y}_p^*$ and G differ greatly, then (A17) will tend to be positive. For the Cobb-Douglas case, if for illustration we assume $B = 0$ and $\bar{y}_p^*$ is twice G, then we can further simplify (A17) to:

$$\frac{dP_1}{dt_1} = P_0\frac{G}{z}\left\{\frac{1+\delta}{1-t_1} - \frac{[1-t_1(2-t_1(1-\delta))][1-\delta]}{(1-t_1(1-\delta))t_1(1-t_1)}\right\} \tag{A18}$$

The sign of (A18) depends only on δ and on t_1. In the text we state the result that with $\delta = \frac{1}{4}$ the sign of (A18) is positive for $t_1 = \frac{1}{2}$.

3. Targeting via contingencies

Let G_1 and G_2 denote contingent transfers to each of 2 non-overlapping contingencies, and let x_1, x_2, be the proportion of population to be found in each contingency. A balanced budget reallocation of transfers among these contingencies requires:

$$x_1 dG_1 + x_2 dG_2 = 0 \tag{A19}$$

Note that the Foster, Greer and Thorbecke (1984) measure of poverty is additively decomposable across population subgroups:

$$P_\alpha = x_1 P_{1,\alpha} + x_2 P_{2,\alpha} \tag{A20}$$

when $P_{1,\alpha}$ and $P_{2,\alpha}$ are the values of the contingencies.

In the case of inelastic labour supply, $\delta = 0$ in (A7) and using (A12) and the budget constraint (A19):

$$\begin{aligned} dP_\alpha &= x_1\, dP_{1,\alpha} + x_2\, dP_{2,\alpha} \\ &= \frac{-\alpha}{z} x_1 P_{1,\alpha-1}\, dG_1 - \frac{\alpha}{z} x_2 P_{2,\alpha-1}\, dG_2 \\ &= \frac{-\alpha}{z} x_1\, dG_1 [P_{1,\alpha-1} - P_{2,\alpha-1}] \end{aligned} \tag{A21}$$

A fuller account of these derivations is given in Kanbur (1985a), but Equation (A21) presents an interesting rule for balanced budget retargeting of transfer expenditures as between contingencies. It says that in deciding to retarget, favour those contingencies which have a higher $P_{\alpha-1}$ poverty value. Notice that the object here is to reduce P_α nationally—the indicators for targeting are *not*, however, the contingency-specific P_α values but the contingency-specific $P_{\alpha-1}$ values; it is the latter which contain the appropriate information on the marginal gain from retargeting. Given the value judgements implicit in the choice of α, the optimal retargeting strategy is also determined.

In the case of elastic labour supply, we have to take into account the effect of changes in G_1 and G_2 on incomes in the two groups, and on net revenue. If both groups have linear tax schedules with minimum income gurantees G_i and group-specific constant marginal tax rates $t_i (i = 1, 2)$, it can be shown, see Kanbur and Keen (1986), that in the Cobb–Douglas utility function case:

$$dP_\alpha = -\frac{\alpha}{z}\frac{(1-t_1(1-\delta^1))}{(1-t_1)} x_1\, dG_1$$
$$\left\{\frac{(1-\delta^1)(1-t^1)}{1-t^1(1-\delta^1)} P_{1,\alpha-1} - \frac{(1-\delta^2)(1-t^2)}{1-t^2(1-\delta^2)} P_{2,\alpha-1}\right\} \qquad \text{(A22)}$$

where δ^1 and δ^2 are the contingency-specific Cobb–Douglas parameters for labour supply.

Notice that when $\delta^1 = \delta^2 = 0$ (A22) collapses to (A21). Since

$$\frac{(1-\delta^i)(1-t^i)}{1-t^i(1-\delta^i)}$$

decreases with σ^i $(i = 1, 2)$, we get that high elasticity of labour supply would weaken the case for retargeting towards a contingency. Section 3.4. considers the case where $\delta^2 = 0$ and $\delta^1 = \frac{1}{4}$.

References

Akerlof, G. A. (1978). 'The Economics of "Tagging" as Applied to the Optimal Income Tax, Welfare Programmes, and Manpower Planning', *American Economic Review.*

Ashenfelter, O. and J. Heckman (1973). 'Estimating Labour Supply Functions', in G. Cain and H. Watts, *Income Maintenance and Labour Supply*, Rand McNally, Chicago.

Atkinson, A. B. (1969). *Poverty in Britain and the Reform of Social Security*, Cambridge University Press, Cambridge, UK.

—— (1984). 'A Guide to the Reform of Social Security', *New Society.*

—— (1985a). 'Social Security, Taxation and the Working Population Over the Next Ten Years', Discussion paper No. 81, LSE Programme in Taxation, Incentives and the Distribution of Income.

—— (1985b). 'Income Maintenance and Social Insurance: A Survey', Discussion Paper No. 5, The Welfare State Programme, London School of Economics.

Atkinson, A. B., M. A. King and N. H. Stern (1984). 'Evidence to Social Security Reviews', Discussion Paper No. 81, LSE Programme in Taxation, Incentives and the Distribution of Income.

Bassi, L. J. (1986). 'The U.S. Welfare System: Safety Net or Poverty Trap?', unpublished, Georgetown University.

Beckerman, W. and S. Clark (1982). *Poverty and Social Security in Britain*, Oxford University Press, Oxford, UK.

Blank, R. M. and A. S. Blinder (1986). 'Macroeconomics, Income Distribution and Poverty', in Danziger and Weinberg (eds.).

Blundell, R., C. Meghir, E. Symons and I. Walker (1985). 'Alternative Specifications of Labour Supply and the Simulation of Tax Systems', unpublished, University College, London.

Burtless, G. (1986). 'Public Spending for the Poor: Trends, Prospects, and Economic Limits,' in Danziger and Weinberg (eds.).

Burtless, G. and J. A. Hausman, (1978). 'The Effect of Taxation on Labour Supply: Evaluating the Gary Negative Income Tax Experiment', *Journal of Political Economy.*

Danziger, S. H., E. H. Haveman and R. D. Plotnick (1986). 'Antipoverty Policy: Effects on the Poor and the Nonpoor', in Danziger and Weinberg (eds.).

Danziger, S. H. and D. M. Weinberg, eds (1986). *Fighting Poverty: What Works and What Doesn't*, Harvard University Press, Cambridge, Massachussetts.

Deaton, A. S. and N. H. Stern (1986). Optimally Uniform Commodity Taxes, Taste Differences and Lump Sum Grants, *Economic Letters.*

Dilnot, A. W., J. A. Kay and C. N. Morris (1984). *The Reform of Social Security*, Oxford University Press, Oxford, UK.

Dilnot, A. W. and G. K. Stark (1986). 'The Poverty Trap, Tax Cuts and the Reform of Social Security,' *Fiscal Studies.*

Ellwood, D. T. and L. H. Summers (1986). Poverty in America: Is Welfare the Answer or the Problem?', in Danziger and Weinberg (eds.).

Foster, J., J. Greer and E. Thorbecke (1984). 'A Class of Decomposable Poverty Measures', *Econometrica.*

Garfinkel, I. (1982). *Income-Tested Transfer Programs, the Case For and Against*, Academic Press, New York.

Garfinkel, I., K. Moreland and E. Sadka (1982). 'Income Testing and Social Welfare: An Optimal Tax-Transfer Model,' in Garfinkel (ed.) (1982).

—— (1986). 'Budget Size Effect of the Optimal Linear Income Tax', *Southern Economic Journal.*

Golding, P. (1986). 'Rich Man, Poor Man', *New Society.*

Heclo, H. (1986). 'The Political Foundations of Antipoverty Policy', in Danziger and Weinberg (eds.).

Hemming, R. (1984). *Poverty and Incentives: The Reform of Social Security*, Oxford University Press, Oxford, UK.

Kanbur, S. M. R. (1985a) 'Budgetary Rules for Poverty Alleviation', Discussion Paper No. 257, University of Essex; also Discussion Paper No. 83, LSE Programme in Taxation, Incentives and the Distribution of Income.

—— (1985b). 'The Standard of Living: Uncertainty, Inequality and Opportunity', Discussion Paper No. 267, University of Essex.

—— (1986). 'Poverty: Measurement, Alleviation and the Impact of Macroeconomic Adjustment', forthcoming in *IMF Staff Papers.*

Kanbur, S. M. R. and M. J. Keen (1986). Optimum Income Taxation and Poverty Alleviation', unpublished.

Layard, P. R. G. and S. J. Nickell (1986). 'Unemployment in Britain', *Economica (Supplement).*

Minford, P. (1983). 'Labour Market Equilibrium in an Open Economy', *Oxford Economic Papers (Supplement).*

Mirrlees, J. A. (1971). An Exploration in the Theory of Optimum Income Taxation', *Review of Economic Studies.*

Moffitt, R. (1983). 'An Economic Model of Welfare Stigma', *American Economic Review.*

Murray, C. (1984). *Losing Ground: American Social Policy, 1950–1980*, Basic Books, New York.

Nathan, R. (1977). The Case for Incrementalism', *Challenge.*

Rawls, J. (1971), *A Theory of Justice*, Harvard University Press, Cambridge, Massachusetts.

Schiller, B. (1984). *The Economics of Poverty and Discrimination*, Prentice-Hall, Inc., Englewood Cliffs, New Jersev.

Sen, A. K. (1981). *Poverty and Famines*, Oxford University Press, Oxford.

—— (1983). 'Poor, Relatively Speaking', *Oxford Economic Papers.*

—— (1985). 'A Sociological approach to the Measurement of Poverty—A Reply to Professor Peter Townsend', *Oxford Economic Papers.*

Stern, N. H. (1976). 'On the Specification of Models of Optimum Income Taxation', *Journal of Public Economics.*

Townsend, P. (1979). *Poverty in the United Kingdom*: *A Survey of Household Resources and Standards of Living*', Penguin, Harmondsworth, Middlesex, UK.

—— (1985). 'A Sociological Approach to the Measurement of Poverty—Rejoinder to Professor Amartya Sen', *Oxford Economic Papers.*

UK Government (1985). *Reform of Social Security, Volumes I, II and III,* Command 9517, Her Majesty's Stationery Office, London, UK.

US Bureau of Census (1984). 'Money Income and Poverty Status of Families and Persons in the U.S.: 1983', Current Population Reports, series P-60, number 145, Washington, DC.

Weicher, J. C. (ed.) (1984). *Maintaining the Safety Net*: *Income Redistribution Programmes in the Reagan Administration,* American Enterprise Institute for Public Policy Research, Washington, DC.

Weinberg, D. H. (1985). 'Filling the Poverty Gap: Multiple Transfer Program Participation', *Journal of Human Resources.*