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## The Distribution of Social Security Transfers in the UK\*

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### ABSTRACT

The distributional impact of different transfer programmes is one of the basic criteria on which decisions such as those on resource allocation may be based. This paper examines the spread over the UK size distribution of different transfers, using data from the Family Expenditure Survey (FES). In addition to analysing the distribution of current transfer receipts by actual current income, estimates are developed which allow the spread of annual receipts by annual income to be examined. The results show that the short-term unemployment and sickness benefits have a considerably greater degree of concentration towards the bottom of the distribution than some previous studies have indicated. This is particularly true for current income, but even for annual receipts and income the degree of concentration is greater than might have been expected. The impression that these benefits have a very low redistributive effect may have had a major influence on recent policy decisions. This is shown to be particularly misleading in the case of unemployment benefit.

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There is a widespread — and perhaps growing — belief that much of state expenditure on social security transfers does not in fact go to those in need. At the same time, the very substantial expenditure on transfers has not, in the view of many, succeeded in eradicating poverty. At a time of extreme pressure for budgetary restraint, the allocation of resources within the social security programme thus takes on particular importance. In making policy decisions in this area, a major factor to be taken into account is the distributional effects of particular programmes, the areas of the distribution to which expenditures actually go. This paper examines the spread over the income distribution of receipts and recipients for each of the major types of cash transfer scheme in operation in the UK, using

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data from the Family Expenditure Survey. This is done from a number of different perspectives, making use in particular of newly-devised estimates of the annual incomes of FES respondents. This allows the contrast to be drawn between the spread of current and annual receipts/income, and provides an added dimension to previous results in this area, which is particularly important in the case of short-term transfer types.

Redistribution to low-income households is not the sole aim of social security policy. Other objectives may include income replacement for those who find themselves in certain contingencies — perhaps linked to previous contributions on some insurance basis — redistribution of income over the life-cycle, child support. Administrative simplicity and efficiency, and minimization of distortionary effects and work disincentives, may also be important desiderata. Different objectives may be of varying importance for different transfer programmes. In the UK, for example, supplementary benefit (SB) and family income supplement (FIS) are means-tested benefits explicitly designed to bring recipients up to a particular overall income level. Unemployment and sickness benefits, on the other hand, are linked to particular contingencies and are paid irrespective of income from other sources provided contributions, etc. conditions are met. (The complex and confused nature of the insurance aspect of the UK social security system has been widely discussed, for example in Dilnot *et al.*, 1984.) Child benefit is non-contributory and payable to all without reference to income. Clearly, the objectives in mind in the design of the various schemes were varied and complex, and the system as a whole is a patchwork of a large number of schemes. However, the alleviation of poverty — redistribution to those on low incomes — is a central objective and justification of the system as a whole. In evaluating the different components, it is therefore essential that full information is available on the distributional effects of the major programmes: this will not be the sole criterion on which to base policy, but it will be a major input.

Previous studies which have assessed the distributional impact of the different transfer types in the UK include Van Slooten (1975), Beckerman (1979a,b), Piachaud (1982), Dilnot *et al.* (1984) and O'Higgins (1985). All are based on FES data, and they present a range of information. Van Slooten (1975) presents a comparison across schemes of the proportion of expenditure going to the bottom 20 per cent of the equivalent distribution, while Beckerman (1979a,b) and Dilnot *et al.* (1984) compare the proportions going to those 'in poverty' (based on SB scales). Piachaud (1982) looks at the spread of transfers over income categories expressed

as a proportion of SB levels. O'Higgins presents data on the spread of different transfers over the quintiles of the pre-transfer equivalent distribution.<sup>1</sup>

A variety of recipient and income concepts are used in these studies, and this — particularly the latter — is a major factor leading to significant differences in the patterns presented for the distributional spread of transfers, notably in the case of the short-term transfers, unemployment and sickness benefits. In particular, Van Slooten's results in his study for the DHSS (1975) may be noted: these show only a very small proportion — 3 per cent — of expenditure on these short-term benefits going to the bottom 20 per cent of households. This is based on the 'normal income' concept used in the FES reports, an income concept explained below which is also used in a number of the other studies. A major objective of the present paper is to provide a more meaningful and complete picture of the spread of transfers by presenting results based on actual weekly incomes, and contrasting these with estimates of the spread of annual receipts by annual incomes. This leads to quite different results from Van Slooten's for short-term benefits, showing a much greater proportion of receipts going to the bottom of the distribution.

Rather than concentrating purely on the proportion of expenditure going to the bottom  $x$  per cent or to 'the poor', the paper takes a broader look at the spread over the distribution. This also allows some interesting conclusions to be drawn on the relationship between the spread by pre and post-transfer income, and between that by income before and after adjustment for size/composition of units. The difference made by using the household rather than the family as recipient unit is also quantified. In looking at the short-term benefits, the importance of treating unemployment and sickness benefits separately — in contrast to a number of the earlier studies which have examined their combined receipts — is also emphasized by the results.

#### DATA AND CONCEPTS

The analysis is based on the 1977 FES sample comprising 7,198 households. The basic income concepts used are 'original income' (income from work and property) and 'gross income' (original income plus state cash transfers). The income data gathered in the FES and widely used refer largely to current weekly income when sampled. (The major exceptions are investment and self-employment income, for which short-term fluctuations are evened out by using the weekly average received over a longer period, generally twelve months.) In the published FES reports, actual income received is not used for all recipients: the

'thirteen-week rule' is used, whereby those away from work when sampled, but not for more than thirteen weeks, are attributed their 'normal' work income rather than any benefits actually being received. Analyses based on FES data tapes hitherto have thus been based either on this 'normal' income concept using the thirteen-week rule, or on actual current weekly incomes of all (with the proviso mentioned above about investment and self-employment income).

However, either of these income concepts may be misleading, if taken alone, for the analysis of the distributional spread of transfers. Actual current income may be relatively low in the week of sampling but may be quite high otherwise. If for example the individual has just become unemployed, looking only at the spread of unemployment benefit by current income may show the benefit going towards the bottom of the distribution. This is indeed of some interest — but it is also relevant to know that by income over a longer period, say, annual income, the recipients are relatively well off. Using 'normal' rather than current incomes for those out of work for a short period — through the thirteen-week rule — is not a satisfactory alternative because it ignores the actual current income of some recipients, is arbitrary in treating different recipients in different ways, and results based on the concept may not be readily interpreted.

A more meaningful approach is to analyse the spread of transfers from the two perspectives: that of current transfers by actual current income and of transfers by income each over a longer period. In this paper, then, estimated annual incomes and receipts of FES respondents will be used for the latter purpose, and compared with the spread of actual current weekly receipts by current income. Extra information gathered in the sample, in addition to that on current receipts and occupational status, etc. allow annual incomes to be estimated using certain assumptions: the main elements of the procedure used are set out in the Appendix, and a full description is presented in Nolan (1983). The information available and assumptions used vary across income and recipient types. For wages and salaries, for example, the most important income type — the amount currently or last received, and the amount normally received if different — are available. An estimate is made of the number of weeks spent out of work in the last year, using information on the weeks spent in receipt of certain benefits over that period plus, for those currently away from work, the length of the current spell (together with certain assumptions about the pattern of benefit receipt). Last or normal weekly receipt by the estimated weeks spent in work is then the estimated annual receipt of income from that source. For investment and self-employment income

the survey actually gathers information on the (average weekly) amount received over a twelve-month period (the past twelve months for investment, the latest for which records are available for self-employment income).

The amount received from various transfer types during the year is estimated as part of this exercise, both for those currently in receipt when sampled and those in receipt at some time in the past year. For the major benefit categories — unemployment, sickness, invalidity, and supplementary benefits and family income supplement — information on the number of weeks they were received in the last twelve months is available. For pensions, it is assumed that the whole year was spent in receipt unless the recipient retired during that period. The rate of transfer currently or last received is available, and is adjusted to take into account upratings during the year, using information on the time during the year when a particular household was sampled.

The limited information in the FES means that these estimates of annual incomes can only be an approximation of actual annual incomes received. Differences may arise, for example, because of an incorrect estimation of the number of weeks spent in/out of work over the period, or because average weekly wages/salaries received when in work do not equal the 'normal' weekly receipt given. However, the information is sufficient to allow a meaningful estimate to be made (and indeed the Central Statistical Office has recently used an annual income concept apparently constructed in a similar manner to look at the impact of unemployment on the income distribution [*Economic Trends*, January 1982]).

Although the survey itself is based on households, the family unit may also be used as the basis for analysis of FES data, since family units within households are also distinguished on the data-tape. The family is broadly defined as either married couples (including any non-adult children living in the same household) or single adults. (This definition is the same as the 'tax unit' used in the Blue Book size distribution of income statistics, and differs only slightly from the Inland Revenue definition of tax units, which may, for example, include husbands and wives living apart.) Here results will be presented for both households and families. In adjusting household or family incomes for differences in size and composition of units, adult equivalence scales based on the SB scale rates prevailing at the time will be used. The alternative to such (implicit) official scales is to use a set of scales derived empirically from expenditure data: a commonly-accepted methodology or set of scales has yet to emerge from this approach, however. The issues involved in the choice of equivalence

scales are discussed in detail in, for example, the Royal Commission on the Distribution of Income and Wealth (Cmnd 7175, 1976, Appendix E) which concluded that the differences between those produced by the empirical studies and those embodied in the SB rates are not great.

The following categories of transfer are distinguished in the analysis: unemployment benefit; sickness/injury benefit; invalidity benefit; supplementary benefit; child benefit; 'total benefits' (includes all the above plus family income supplement, which is only received by a small number of respondents and is thus not analysed separately, plus a number of other benefits which are not very important quantitatively); NI pensions, etc. (such as NI retirement, old age and widows' pensions); and total social security transfers (total benefits plus NI pensions, etc.).

#### THE SPREAD OF TRANSFERS

##### *Current transfers/incomes*

Results for the spread across the distribution of current receipts of the various transfer types by actual current weekly incomes in the 1977 FES are now presented, followed by similar data for estimated annual receipts by estimated annual incomes. In each case the distribution by adult equivalent income will be the main basis used since it is in relation to needs that the spread of transfers will generally be assessed: some comments will, however, be made on the major differences between the spread by actual as opposed to needs-adjusted incomes. The results are first presented for the distribution among households, before exploring the difference which using the family as recipient unit would have made.

Table 1 shows the percentage of current receipts of each transfer type going to the bottom 10 per cent, 20 per cent and 50 per cent of the household distribution<sup>2</sup> when households are ranked by current weekly original (i.e. pre-transfer) and by current weekly gross income, each adjusted using equivalence scales. These results show that SB is clearly the transfer type with current receipts most concentrated at the bottom, by either pre or post-transfer current income. Over 65 per cent of SB goes to the bottom quintile by gross income, and only 6 per cent to households outside the bottom half. (Receipts of SB are not completely concentrated at the bottom of the household distribution despite the means-tested nature of the benefit, partly because the family rather than the household is the base for the test, as explored below.)

However, unemployment benefit is also relatively highly concentrated towards the bottom of the distribution. Just over half current unemployment benefit receipts go to the bottom quintile by either original or gross current income, and only 13 per cent goes outside the bottom half of the

TABLE 1. Spread of current transfer receipts among households ranked by current original and gross equivalent income

% of receipts going to	Unemployment benefit	Sickness benefit	Invalidity benefit	Supplementary benefit	Child benefit	Total benefits	NI pensions	Total transfers
<i>(a) By original equivalent income</i>								
Bottom 10%	34.2	7.9	28.3	56.7	6.8	32.4	20.1	25.2
Bottom 20%	50.5	19.3	45.5	77.4	10.5	47.2	47.3	47.3
Bottom 50%	86.8	68.8	91.4	96.3	55.0	81.8	84.9	83.7
<i>(b) By gross equivalent income</i>								
Bottom 10%	33.6	12.3	26.0	37.2	11.8	26.0	15.2	19.6
Bottom 20%	50.9	16.5	41.0	65.5	17.7	42.7	38.8	40.4
Bottom 50%	78.7	55.4	85.1	94.3	58.8	77.5	76.5	76.9

Source: Analysis of 1977 FES.

pre-transfer distribution. In particular, it may be noted that current unemployment is more highly concentrated at the bottom than NI pensions. Sickness benefit is considerably less concentrated at the bottom than these or than invalidity benefit, which is much closer to unemployment benefit in pattern. Even in the case of sickness benefit, though, almost 70 per cent of current receipts are within the bottom half of the pre-transfer distribution.

Overall, about 47 per cent of all current transfer receipts go to the bottom quintile by original income, and about 40 per cent to the bottom quintile by gross income. It is interesting to note that the use of gross rather than original income does not radically alter the pattern or comparative results across transfers. It may also be of interest that the spread of current recipients of the various transfer types is quite similar to the spread of current receipts shown.

#### *Annual receipts/income*

We now turn to the spread of estimated annual receipts of the various transfer types among households ranked by estimated annual incomes. The estimation procedures and assumptions, etc. involved are discussed in more detail in the Appendix. Whereas current receipts, examined above, related only to those in receipt when sampled, we are now concerned also with those not currently in receipt but who got transfers at some stage in the year. Table 2 shows the results for annual receipts among households ranked by annual original and gross equivalent incomes.

Supplementary benefit remains clearly the most concentrated at the bottom, with 75 per cent of annual receipts going to the bottom quintile by pre-transfer income. Invalidity benefit is the next most concentrated, followed by unemployment benefit and pensions. The comparison between unemployment benefit and pensions is not clear-cut; in terms of original income pensions are more concentrated at the bottom, but using gross income the Lorenz curves for the two would intersect.

Comparing the spread of annual receipts in Table 2 with those of current receipts in Table 1, the use of the longer time period makes much more difference for unemployment and sickness benefits than for the other transfer types. For supplementary benefit or pensions, annual receipts are in fact almost exactly as concentrated at the bottom of the annual distribution as are current receipts in the current distribution. For unemployment and sickness benefits, however, annual receipts are a good deal less concentrated at the bottom than current receipts: for unemployment benefit, for example, 51 per cent of current receipts but

TABLE 2. Spread of annual transfer receipts among households ranked by annual original and gross equivalent income

% of receipts going to	Unemployment benefit	Sickness benefit	Invalidity benefit	Supplementary benefit	Child benefit	Total benefits	NI pensions	Total transfers
<i>(a) By original equivalent income</i>								
Bottom 10%	9.3	3.1	31.0	55.6	5.1	27.0	23.7	25.0
Bottom 20%	26.1	9.3	52.5	75.1	9.3	41.4	51.1	47.2
Bottom 50%	71.5	61.6	91.6	95.9	56.4	78.2	84.5	81.9
<i>(b) By gross equivalent income</i>								
Bottom 10%	21.5	7.2	30.7	36.9	11.4	23.4	17.8	20.0
Bottom 20%	35.6	15.7	45.2	65.9	17.0	49.8	41.2	40.6
Bottom 50%	67.9	58.6	85.8	94.6	60.2	75.8	75.8	75.8

Source: Analysis of 1977 FES.

only 26 per cent of annual receipts go to the bottom quintile by original current/annual income, respectively. This is not surprising, given the different nature of the transfers. Unemployment and sickness benefits are in many cases only received for a part of the year, and some of the recipients will have been in work on relatively high incomes for part or most of the year. For pensions, invalidity benefit, and for much of SB (i.e. for almost all those in receipt of supplementary pensions and many of these in receipt of supplementary allowance), on the other hand, most of the recipients will have been in receipt all year, their current and annual average incomes are similar, and there is thus no great change in rankings when annual rather than current incomes are used.

It may also be noted that for the short-term benefits, recipients are considerably less concentrated at the bottom of the annual distribution than are receipts. For unemployment benefit, for example, 36 per cent of annual receipts go to the bottom quintile by gross equivalent annual income, but only 20 per cent of those who received unemployment benefit during the year are in that quintile. This is because those who were in receipt of these benefits for only a short period during the year will have a lower proportion of total receipts than those in receipt for much or all of the year, and are more likely to be relatively highly ranked by annual income. Those in receipt for most of the year, and thus in receipt of most of the annual expenditure, are generally towards the bottom of the distribution. Annual receipts are thus more highly concentrated at the bottom than annual recipients for these short-term benefits: for the other benefits and pensions that is not an important feature, since most recipients will have been in receipt all year.

Before turning to the difference made by using the family rather than the household as recipient unit, it is interesting to note briefly the impact which the adjustment of incomes for differences in size/composition of unit in fact has on the spread of transfers. If the spread over the actual size distribution rather than the adjusted distribution is examined, the degree of concentration at the bottom is considerably lower for all the benefit types, particularly for unemployment and child benefits, while for pensions the degree of concentration at the bottom is higher for unadjusted than adjusted incomes. These findings hold for both current and annual receipts/incomes, and are more pronounced for gross than for original incomes. The implications for the impact of, for example, an increase in unemployment on the observed size distribution of actual incomes may be noted. Recipients of unemployment are seen to be quite widely spread over this unadjusted income distribution, particularly if annual rather than current incomes are being considered.<sup>3</sup> The impact

TABLE 3. *Percentage of receipts of different transfer types going to the bottom 20 per cent by gross equivalent income, for families and households*

<i>Transfer category</i>	<i>Current gross equivalent income</i>		<i>Annual gross equivalent income</i>	
	<i>Family %</i>	<i>Household %</i>	<i>Family %</i>	<i>Household %</i>
Unemployment benefit	59	51	40	36
Sickness benefit	21	16	16	16
Invalidity benefit	51	41	58	45
Supplementary benefit	70	66	72	66
Child benefit	18	18	18	17
Total benefits	47	43	45	40
NI pensions, etc.	40	39	45	41
Total transfers	43	40	45	41

of an increase in unemployment may thus be less concentrated at the bottom of the observed size distribution than might be expected, an issue explored in some detail elsewhere (see Nolan, 1984b).

#### *The family rather than household recipient unit*

A clear and unambiguous choice between the household and family as the recipient unit most suitable for the analysis of the spread of transfers is not possible, depending in part on the empirical question of the extent to which incomes are shared within these units (see, for example, Atkinson, 1975). Here the difference which the use of the family rather than the household makes to the degree of concentration of transfers at the bottom of the distribution is examined. Table 3 summarizes the main results of this comparison in terms of the percentage of current and annual receipts of the various transfers going to the bottom quintile of the current/annual gross equivalent income distributions respectively.

This comparison shows that in general receipts are more highly concentrated at the bottom of the distribution when the family unit is used: some families in larger households in receipt of transfers are raised in the household ranking by the relatively high income of other family units. There are some interesting differences in the extent to which concentration is increased, however. For current receipts/income, increased concentration when using the family unit is particularly marked for unemployment and invalidity benefits, is smaller but still substantial for sickness and supplementary benefits, and is marginal for pensions. For annual receipts/incomes, the difference in concentration between

family and household is smaller than for current receipts in the case of the short-term unemployment and sickness benefits, but greater for supplementary benefit and pensions. Overall, 43 per cent of current transfer receipts goes to the bottom quintile in the family gross equivalent distribution compared with 40 per cent for households, while for annual receipts/income the figures are 45 per cent and 41 per cent respectively.

Use of the family rather than the household as recipient unit thus shows in general a somewhat greater degree of concentration of transfers towards the bottom of the distribution. While affecting the detailed pattern of distributional spreads, it does not alter the broad conclusions with respect to the comparison of the degree of concentration across transfer types. The implications of these results are now assessed in comparison with the results of previous studies.

#### ASSESSMENT

The implications of the results presented above on the spread of current and annual transfer receipts may best be highlighted by comparison with those of Van Slooten (1975) for the DHSS. He examined the comparative redistributive effects of various transfer types by looking at the percentage of expenditure on each transfer type going to the bottom quintile of the equivalent income distribution among households in the 1973 FES sample. A major difference in approach to that adopted in the present study is the income concept used: Van Slooten used the FES 'normal income' concept based on the thirteen-week rule, whereby those out of work for not more than thirteen weeks when sampled are attributed their reported normal work incomes rather than actual benefits being received. He also used net rather than gross or original income — i.e. gross (normal) income net of income tax and national insurance contributions.<sup>4</sup>

The major conclusions drawn in Van Slooten's study were that SB had the most marked redistributive effect, and that NI pensions had a much greater redistributive impact than the short-term unemployment and supplementary benefits, which were found to have a very small proportion of expenditure going to the bottom quintile. The results on which these conclusions are based are shown in Table 4, together with the most relevant figures for comparative purposes from the results described above for both current and annual receipts/income.

Comparing Van Slooten's percentage of (current) receipts going to the bottom quintile with my results for current receipts going to the bottom 20 per cent of the gross equivalent current income distribution, there is relatively little difference between the two for pensions and for child

benefit. For SB, Van Slooten's results show a somewhat lower percentage going to the bottom groups, but the striking difference is for the short-term benefits where Van Slooten's percentage going to the bottom quintile is so much lower that it shows a completely different picture. Only 3 per cent of expenditure on unemployment and sickness benefits goes to the bottom quintile in his results, compared with 51 per cent of current unemployment receipts and 16 per cent of sickness benefit found in the results reported in this paper.

The principal reason for the difference with respect to short-term benefits (which also applies to some SB receipts) must be Van Slooten's use of 'normal' income. This means that many of those who are currently in receipt of these benefits, who actually have relatively low current weekly incomes and are shown as such in my analysis, do not appear at the bottom of Van Slooten's 'normal' income distribution, because they have not been out of work for more than thirteen weeks and are therefore classed by their normal work income.<sup>5</sup> However, if one is attempting to relate short-term benefits to short-term needs, the use of actual current incomes in all cases, rather than 'normal' income for some, is a more appropriate procedure.

If benefit received is to be related to average income over a longer period rather than to current weekly income, a more revealing approach is to relate annual receipts of benefit to annual incomes. My analysis estimated that, for the short-term benefits, 36 per cent of annual unemployment benefit receipts and 16 per cent of annual sickness benefit receipts went to the bottom quintile of the annual gross equivalent income distribution. These figures are not comparable with Van Slooten's because they refer to the percentage of total expenditure during the year, not during a particular week, which goes to the bottom groups, so that those in receipt for much of the year will receive a large proportion of the benefit paid and will also tend to be towards the bottom of the distribution. They do show, however, that even when the redistributive impact on the basis of incomes over a longer period, rather than purely current receipts/income, are considered, the short-term benefits have a much greater redistributive impact than shown by Van Slooten's results.

This significantly alters the conclusions to be drawn with respect to the ranking of different transfers by redistributive impact. While Van Slooten's results show pensions to have a much greater redistributive impact than short-term benefits, for current receipts/incomes my results show unemployment benefit has a considerably greater percentage of receipts going to bottom groups. For annual receipts/incomes, unemployment benefit does have a slightly smaller redistributive impact than

pensions but the difference is not substantial. It may also be recalled that the household rather than the family is being used as recipient unit in this comparison since this is the unit used by Van Slooten. If the family unit is used instead, the results presented in Table 3 show that for current receipts/income the degree of concentration of unemployment benefit at the bottom is considerably increased whereas that for pensions is only marginally increased. This means that current unemployment benefit receipts are very considerably more concentrated at the bottom of the family distribution than pensions (the percentage going to the bottom gross income quintile in the family distribution being 59 per cent for unemployment benefit compared with 40 per cent for pensions). For annual receipts/income the use of the family rather than the household leaves the comparison between unemployment benefit and pensions unaffected, with pensions still slightly more concentrated at the bottom.

The comparison of my results with those of the other studies mentioned — (Beckerman, 1979a,b; Piachaud, 1982; Dilnot *et al.*, 1984) cannot be as direct as that with Van Slooten's, since their results are based on the proportion of receipts going to those 'in poverty' or by category of income relative to SB rates. However, broad conclusions can be drawn on important differences in the pattern shown. One major issue relates to the fact that Beckerman and Piachaud use normal income for FES respondents, as did Van Slooten (though the income concepts used in each differ in some other respects). On this basis Beckerman finds a very much higher proportion of pensions than of short-term benefits going to the pre-benefit poor.<sup>6</sup> As shown above, this may be quite misleading as a comparison of redistributive effects, since current receipts by actual income do not show such a divergence, nor do estimated annual receipts/incomes.

Piachaud also uses normal income, looking at the spread of transfers by post rather than pre-transfer income. His results thus also understate the concentration at the bottom of current receipts by actual income, as the broad comparison possible with my results confirms,<sup>7</sup> but they in any case show a much less stark divergence between pensions and short-term benefits than Beckerman's. This highlights a further important implication of the results presented above. These show that the use of post rather than pre-transfer income as the basis for assessment reduces the concentration of pensions at the bottom of the current distribution to a greater degree than short-term benefits. This illustrates the importance of not just comparing the degree to which different transfers go to the pre-transfer poor — 'vertical efficiency' in Beckerman's terminology — but also taking into account where the recipients end up in the

post-transfer distribution, the 'spillover' involved in raising recipients *above* the poverty line. Both Beckerman and Dilnot *et al.* conclude that spillover is particularly substantial for pensions, but the precise quantification of spillover for different programmes is subject to conceptual difficulties.<sup>8</sup> The assessment of the spread of transfers by both pre and post-transfer income, as in the present paper, is therefore appealing.

The comparison of my results with those of previous studies also illustrates the importance of distinguishing between unemployment and sickness benefits, rather than looking at the two as combined 'short-term benefits' (which is what Van Slooten, Beckerman and Dilnot *et al.* do). The degree of concentration of unemployment benefit at the bottom of the distribution is much greater than that of sickness benefit, with, for example, 51 per cent of current unemployment benefit compared with 19 per cent of SB going to the bottom quintile of households by current original income. The use of an aggregate may thus mislead as to the redistributive effect of each.

Finally, a number of recent changes in the short-term benefit programmes, having the effect of increasing their concentration towards the bottom of the distribution, must be noted. In particular, the abolition of the earnings-related supplement to unemployment benefit, the fact that from 1983 the employer rather than the state is liable for the first eight weeks of sickness benefit, and the taxation of short-term benefits were important measures in this regard. The relatively favourable picture of the degree of concentration of these benefits shown in my results, compared with other studies, has thus been accentuated by these changes.

#### CONCLUSIONS

The paper has examined the spread of different transfer types in the UK over the size distribution, focusing in particular on the degree to which expenditure on various types is concentrated towards the bottom of the distribution. Use was made of estimates of annual receipts and income to compare the degree of concentration of annual receipts with that of current receipts by current income. These two perspectives allow a more complete picture to be arrived at, and yield results which are different in important respects from previous studies, which have largely been based on 'normal' rather than actual current income.

The most significant difference in the pattern shown is that short-term benefits have a considerably greater degree of concentration towards the bottom of the distribution than some studies have indicated. This is particularly true for current income, but even for annual receipts the

degree of concentration towards the bottom is greater than might have been expected. The results also showed the importance of distinguishing between unemployment and sickness benefit in looking at short-term benefits, with unemployment benefit having a much higher degree of concentration towards the bottom.

These findings on short-term benefits have particular significance for policy choices on the allocation of scarce resources between such benefits and, for example, pensions. The impression that these benefits have a relatively low redistributive effect may have played a major part in the recent restructuring of both unemployment and sickness benefits. Particularly after these changes, however, this impression may be quite misleading, especially for unemployment benefit. The degree of redistributive effect is not in any case the sole standard by which programmes should be compared. Other objectives may also be important, notably, in the case of these short-term benefits, income replacement to allow short-term fluctuations in earned income to be evened out. Since these benefits are targetted specifically at short-term income deficiency or income loss, it is particularly important in this case to focus on actual current income rather than 'normal' income.

If a longer perspective is also to be taken, then the results presented for annual receipts/incomes illustrate that unemployment benefit receipts are still relatively concentrated towards the bottom. This reflects the fact that the concentration of annual expenditure depends not only on the incomes of those currently receiving in a particular week, but also on the length of time over which benefit is received. Those in receipt for longer periods are more likely to be towards the bottom of the annual income distribution and will receive most of the annual expenditure. Thus annual expenditure is much more concentrated towards the bottom than a consideration of the income position of recipients alone would lead one to expect.

In taking an annual income perspective, the interconnection between the tax and transfer systems is a major factor to be taken into account in policy formulation. The present paper has focused on the transfer system, but a comprehensive analysis would include the impact of tax — and tax expenditures — and the way in which the tax and transfer systems overlap and interact. The desirability of greater integration between tax and transfer systems has been widely recognized, some commentators recommending a complete integration. In the present context it may suffice to note the role which taxation can play in reducing the degree of 'spillover' of benefits. Taxation on the basis of annual incomes may allow transfers to be targetted on income and needs over

shorter periods while reducing the spillover to those on a relatively high annual income. The taxation of short-term benefits marked an important move in this direction, but there remains considerable scope for further progress through greater integration. A more radical approach would be to have benefit entitlement related directly to annual incomes. This need not conflict with paying benefits in a particular week to all those in need or in particular contingencies at that time. At the end of the year, however, actual annual income could be used to determine in which cases the benefit would have to be paid back to the state. Such an approach could, however, have serious disincentive effects: the issue is discussed by Dilnot *et al.* (1984), who conclude that the arguments over the period of assessment for benefit are finely balanced. If such issues as the appropriate period on which benefit entitlement should be based are to be adequately addressed, the analysis of the spread of current versus annual transfer receipts is essential.

#### APPENDIX: THE ESTIMATION OF ANNUAL INCOMES IN THE FES

A full description of the procedure used in this paper is given in Nolan (1983): this Appendix summarizes the main features. It may be noted that the period involved is the twelve months prior to sampling, not the calendar year, since sampling took place through the year.

The information available in the FES varies across income sources. Only the information for investment income is in the form required for annual income, namely the (weekly equivalent of the) amount actually received in the past twelve months. For self-employment income, the amount received over the last twelve months for which records are available is gathered, and may be used as an estimate of annual income.

For employment income, the major income source, the information available refers to the weekly/monthly amount currently or last received, plus the 'normal' amount if different. The annual receipt must then be estimated by utilizing other information to estimate the number of weeks spent in work over the last year. This is done using data on the number of weeks spent in receipt of certain social security benefits in the past year and, for those currently away from work, the length of the current spell.

The number of weeks spent in receipt of unemployment, sickness, invalidity and supplementary benefit over the past year are available in the survey. The first three of these benefits are only received when out of work, and cannot be received together. Each therefore indicates a separate period out of work in the past year. The information on SB is a good deal more complicated to use since this benefit may be received (a) when in part-time work (subject to an income limit); (b) when out

of work but together with one of the other benefits; or (c) when out of work and not in receipt of the other benefits. Where this gives rise to difficulties — for example where the individual has received both unemployment and supplementary benefits during the year — the information on amounts actually received, the weeks spent in receipt of each, and normal work hours (i.e. whether part-time or not) are used to try to pin-point where the supplementary benefit indicates a separate period out of work.

This benefit information is all that is available for the estimation of time out of work in the past year for those currently employed. For those currently away from work because of unemployment or sickness, the length of the current spell away from work is also known. In using this extra information to estimate time spent out of work in the year, it is assumed that any benefits received were during the current spell so far as the length of that spell allows. So weeks spent out of work are then (length of current spell, up to 52 weeks) or (time spent out of work in receipt of benefits), whichever is greater.

Annual wage/salary income is then estimated as (52 minus weeks out of work) x last (or normal) weekly receipt. For occupational pension, the weeks since retirement are known (if two years or less) and are used to estimate annual receipt as (weeks retired in last year) x weekly receipt. For social security pensions, widows' pensions are assumed to have been received all year, while retirement/old age pensions are assumed to have been received all year or for the period retired if less. For social security benefits, the weeks in receipt are known for the major categories, as already noted. For both benefits and pensions, an adjustment is made to the amount last received to take account of the upratings in the level of payment which were made during the year, in order to eliminate artificial differences between individuals due to differences in the date during the year when they were sampled.

The limitations in the information available mean that the resulting estimates of annual income can only be an approximation of actual annual incomes received. The most important gaps in information may be precise data on the number of weeks spent in/out of work over the year, and on any variation in the weekly amounts received for wage/salaries (where 'normal' receipt may not be the same as actual average receipt) and benefits (where the amount received may not have been the same throughout the period of entitlement).

## NOTES

- 1 The CSO in their annual examination of the effects of taxes and transfers on the distribution also present some relevant data, notably on the spread of different transfer types by original income (see, for example, *Economic Trends*, November 1983).
- 2 More detailed results, giving the full spread of transfers over the distribution by decile, are available for this and the other income concepts discussed, as presented in Nolan (1984a) and available from the author.
- 3 For unemployment, only 9 per cent of annual recipients are in the bottom gross unadjusted quintile compared with 20 per cent in the same quintile by equivalent income.
- 4 The equivalence scales used are also slightly different. Van Slooten (1975) using those estimated by McClements (1977) from FES expenditure patterns rather than those derived from SB scale rates.
- 5 This would be the case for about 39 per cent of those currently unemployed in the 1977 FES, for example, and the figure would be higher for those on unemployment rather than SB.
- 6 Beckerman's proportion of pensions going to pre-transfer poor families is in fact remarkably high, at 95 per cent (1979a, Table 7, p.277). This compares with 38 per cent for unemployment and sickness benefits combined. These refer to families by pre-transfer normal income net of direct tax and housing costs, and are thus not directly comparable with our results.
- 7 Piachaud's results refer to the spread of transfers among families by post-transfer normal income net of direct taxes and housing costs, with income expressed as a proportion of SB entitlement. Those with incomes under 120 per cent of that level comprise 24 per cent of all families, and receive 44 per cent of unemployment benefit and 9 per cent of sickness benefits in his results (1982, Table 4.3, p.56). The most nearly comparable figures in the results presented earlier are for the bottom 20 per cent of families by actual gross income (though in addition to being by actual rather than normal income they refer to gross rather than income net of direct taxes and housing costs). These receive 59 per cent of current unemployment benefit and 21 per cent of current sickness benefit.
- 8 'Spillover' may be meaningfully defined for transfers as a whole, but for any individual programme the extent to which the recipient is raised over the poverty line by that programme depends on the treatment of other transfers being received. Beckerman thus concluded that 'it is not possible to estimate spillover by programme, since it makes no sense to say how far any individual benefit raised the poor above the poverty line for this depends on the total benefits being paid' (1979a, p.277). He goes on to point out, though, that spillover can be defined in terms of individual classes of beneficiaries, and that over 80 per cent of overall spillover is incurred by pensioners. Dilnot *et al.* (1984) measure spillover for different programme types by assuming that transfers contribute to income in a particular order (namely pension, child benefit, national insurance benefits, FIS, rent and rate rebates, SB) which has an appeal but is clearly somewhat arbitrary.

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