Measurement and Alleviation of Poverty: With an Application to the Effects of Macroeconomic Adjustment (Evaluation quantitative de la pauvreté et remèdes possibles: analyse des effets d'un ajustement macroéconomique) (Medición y alivio de la pobreza, con una aplicación a los efectos del ajuste macroeconómico)

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Measurement and Alleviation of Poverty

With an Application to the Effects of Macroeconomic Adjustment

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THE CONSEQUENCES OF MACROADJUSTMENT for the poorest of the poor has been a topic of growing interest in recent years. As more and more developing countries have been forced to reconsider their macrostabilization policies and have contemplated the implementation of new ones, the impact of these policies on income distribution and on poverty has emerged as an important area of analysis and research. Since some of the new policies may involve radical changes in certain aspects of policy, such as the extent and nature of food subsidies, the impact of macroadjustment has to be seen in the broader content of strategies for poverty alleviation. The object of this paper is to review recent developments in the measurement of poverty, to analyze alternative strategies for poverty alleviation, and finally, with this background, to suggest a methodology for evaluating the impact of macroadjustment on poverty.

It should be emphasized at the outset that the focus of the paper is on poverty and not on inequality. There are good reasons for this focus, apart from constraints of space. First, it can be argued that from a policy point of view, the primary interest should be in the well-being of the poorest members of the community. Second, and more pragmatically, it may be much easier to achieve a consensus around poverty alleviation as an objective, whereas it is difficult to achieve even broad consensus on distributional objectives that may involve, for example, weighing the

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social worth of incomes going to the rich versus incomes going to the super-rich.

Section I of the paper begins with a discussion of a basic requirement when discussing poverty—the poverty line. It is argued that the disputes around what the poverty line should be arise partly because the standard of living is itself a multidimensional concept; a minimum acceptable level has to be specified along each dimension and then aggregated to form the poverty line. But disputes also arise partly because the poverty line is a *sharp* divide between poor and nonpoor, between those worthy of special concern and those not. One answer to this is to carry out sensitivity analysis with a range of poverty lines, and this is recommended as a research strategy. The question of absolute and relative poverty is also considered, and it is argued that, while the notion of poverty must have an "absolutist core," this is along the dimension of being able to participate in society up to an adequate level. Along the dimension of income, this may well translate into a relativist view, linking the poverty line to the average level of income in society.

These conceptual issues apart, at the operational level we are invariably restricted by the nature of data availability—in most cases a household income and expenditure survey, perhaps supplemented by a nutrition survey. It is suggested that a method which bases the poverty line on food expenditure for minimum nutritional intake and adjusts for nonfood expenditure by reference to the population at large is operationally convenient and reasonably satisfactory.

Having defined a poverty line, and having used that to divide income-receiving units into poor and nonpoor categories, in Section II we face the question of summarizing the information on the incomes of the poor into a single index. The fraction of units below the poverty line, the so-called head-count ratio, though in common use as a poverty index, is unsatisfactory because it does not tell us anything about how poor the poor are. There are two approaches to specify the latter. One is to arrive at a representative income for the poor units, which could either be the average income of the poor or an adjusted average taking account of the inequality of incomes among the poor, and then to take the gap between the poverty line and the representative income. The other is to consider the poverty gaps for each poor unit and calculate a representative gap. This could be simply the average of all the gaps or an adjusted average. These two methods of calculation give rise to different families of indices with different properties. It is argued that the latter class of indices is more convenient to use for policy analysis because it turns out to be decomposable—poverty at the national level can be written as a weighted sum of poverty in each of several subsectors. Since policy

instruments can often be characterized as affecting different groups in the population differently, it follows that decomposability is an attractive analytical property, and this is shown to be the case later on in the paper.

Section III introduces the concept of "crossover time," the time that it would take the average poor person to cross the poverty line if his income grew at the per capita growth rate experienced in the country over reasonable periods of time. The calculation of this statistic for a poor country should provide an assessment of the role of "trickle down," growth without redistribution, in alleviating poverty. It is argued that for reasonable estimates the crossover time can be well over twenty years, which perhaps explains many policymakers' concern with redistribution.

Section IV considers the possibilities of perfectly targeted poverty alleviation—where the poor can be identified costlessly. This figure, which is proportional to one of the indices of poverty discussed in Section II, gives us the minimum financial cost of poverty eradication, a figure which should be of interest to domestic policymakers and aid donors alike. If external aid is not forthcoming, then this figure is an indicator of the minimum redistributive effort necessary to eradicate poverty. It is suggestd that the ratio of this sum to the total incomes of the saving classes provides an indicator of the possible growth costs of redistribution for poverty alleviation.

Perfectly targeted poverty alleviation is, of course, useful only as a benchmark. In practice, leakages will occur because policy instruments can be directed only at broad groups in the population: price support for particular crops will benefit rich and poor farmers, food subsidies will benefit rich and poor consumers, state pensions will benefit those in need and those not, and the like. The interesting question, however, is how the expenditure is to be directed toward these groups. What information should be used to guide budgetary rules for poverty alleviation? Section IV analyzes this question in a stylized setting and finds a new role for the head-count ratio, not as a poverty index but as an indicator for budgetary stance. To summarize the detailed argument of Section IV, if the objective is to minimize the aggregate poverty gap—the total shortfall of poor peoples' incomes from the poverty line—then relatively more should be spent on groups which have the higher head-count ratios. Another result of importance in this section is on food subsidies—if the objective is the poverty gap, then commodities for which consumption by the poor is a large fraction of total consumption should attract the higher subsidies. It is noted that the implementation of the rule does not require estimation of demand systems; it simply uses information directly available in household income and expenditure surveys.

Section V turns to a hitherto neglected area, in which there is now a

pressing need for research. This is the impact of macroeconomic stabilization and adjustment policies on poverty. The section takes as its basis the expenditure-switching and expenditure-reducing framework of analysis. Using the traded/nontraded sector divide that lies at the heart of the expenditure-switching analysis, the section derives formulas for the impact on poverty of a shift in the composition of national output toward traded goods. It is shown that the impact on the aggregate poverty gap at the national level depends, inter alia, on the head-count ratios in the two sectors. Thus, if the head-count ratio in the traded goods sector far exceeds that in the nontraded goods sector—which may be true, for example, in an African context where the former is identified with the rural sector and the latter with the urban sector—then expenditure-switching devices may well reduce the national poverty gap. But this conclusion would be weakened if the traded and nontraded sectors could not be so identified (if, e.g., farmers produce crops for export as well as food for domestic markets), or if the traded and nontraded sectors were not mutually exclusive (i.e., some individuals received income from both sectors, e.g., capital and rental income).

So far as expenditure reduction is concerned, the optimal application of different instruments, which affect subgroups of the population differently, is simply the converse of the optimal disbursement of a poverty alleviation budget. The question now is which groups should bear most of the burden of income reduction necessitated, for example, by a reduction in government deficits. Should farm price support be cut, or urban food subsidies? Again, if the objective is to do as little damage to the aggregate poverty gap as possible, the head-count ratio proves to be a useful indicator. Groups with lowest head-count ratios should bear the greatest burden.

Section VI concludes the paper by emphasizing some topics for further research. It is argued that the major return to work in this area is now probably empirical research and research on optimal policy design, whether for disbursing budgetary expenditure or for cutting back and switching expenditure in the wake of a macroeconomic adjustment. Research which links the macroeconomics of stabilization and adjustment to the microeconomics of poverty has only just begun. It is important enough to continue and expand rapidly in the near future.

I. Measurement: The Poverty Line

The "poverty line" is a term which suggests that it delineates the poor from the nonpoor. When we say that an individual is in poverty, or below the poverty line, we mean that the person's standard of living falls below

a minimum acceptable level. But this in turn raises two questions—what do we mean by the standard of living, and how does one calculate the minimum acceptable level? The standard of living is by nature a multidimensional concept. The various commodities an individual consumes, and the activities he engages in, or could engage in, all form part of his standard of living. Given this multidimensionality, the first step in specifying a poverty line ought to be the specification of a minimum acceptable level along each of the different dimensions. But this is in itself problematic: there may be no clear agreement on a *sharp* divide between poor and nonpoor, and a poverty line is in fact just such a sharp divide.

While there may be a greater degree of agreement along the nutritional dimension (although even here there is a range of possibilities), disagreements are more likely along nonnutritional dimensions such as clothing and housing or, even more so, other items of expenditure such as entertainment. In fact, Sen (1983) and Townsend (1979) argue that these items, nutritional and nonnutritional, are simply manifestations of a more fundamental requirement—the capacity to be able to participate in the social life of the community at a minimally acceptable level. This is the "absolutist core" of the concept of poverty, and the requirements this imposes on different dimensions may or may not have "relativist" connotations. Basic nutritional requirements may vary little across societies or over time, but the nonnutritional requirements for a minimal participation in the social life of the community are very much dependent on context. According to this line of argument, it is not inconsistent or incoherent to say that two individuals, one in a poor country and one in a rich country, are both in poverty and equally so, even though the income level of the person in the rich country is many times that of the person in the poor country.

These conceptual issues aside, how does one arrive at a poverty line at the operational level? There seem to be two approaches. One is to specify minimum requirements for both food and nonfood items and to then calculate the amount of income necessary to purchase these at current prices. The other approach is based more directly on food requirements. It was used by Orshansky (1965) and is now the basis for poverty-line calculations in many developing countries. The first step in the calculation is to derive the minimum expenditure necessary, at current prices, to attain minimum nutritional intake. As already indicated, the latter is not noncontroversial, but many economists working on developing countries now use Food and Agriculture Organization/World Health Organization guidelines. The minimum food expenditure thus calculated is then "grossed up" by an appropriate factor to take account of nonfood requirements. But which factor? Orshansky used the average

ratio of food expenditure to total expenditure in the population as a whole. There are other possibilities and refinements (see Altimir, 1982), but the Orshansky method seems to capture, at the operational level, a view of poverty which relates it to the capacity to be able to participate in all of the activities of the community on average.

One can argue a great deal at the theoretical level about the various methods of deriving a poverty line, and such debate is important. In practice, however, it is data availability that almost always dictates the method chosen. At the operational level one would typically work with a given household income and expenditure survey, perhaps coupled with a nutrition survey. Given these, the food expenditure-based method often turns out to be the best of the available options (for a recent illustration of such an exercise, see Stavenuiter, 1983). There are, of course, many other problems in analyzing household income and expenditure surveys. It would be beyond the scope of this paper to address these in detail, but the twin questions of the definition of the income-receiving unit and of the definition of income will always be important. In many developing countries income data are thought to be unreliable, particularly when there is production both for the market and for self-consumption. In India, for example, consumption data are the main workhorse of distributional analysis. Nevertheless, income, which includes saving or dissaving, may be thought to be conceptually closer to a measure of the standard of living. Ideally, of course, one would like income data over a number of years to take account of year-to-year fluctuations, but as Kuznets (1955) noted, data of such quality and coverage are only "a statistical economist's pipe dream."

The definition of the income-receiving unit also raises some deep questions. The "household" is most often used as the income-receiving unit, and in fact poverty lines are often stated in terms of household income. The underlying assumption is that income-sharing is strongest within the household, and data could not in any case, at least not without considerable difficulty, be collected on individuals within a household. This immediately faces us with the problem of allowing for the size and the composition of the household in translating total household income into the standard of living of the individuals in it. Adult-equivalent scales can be used to undertake this translation, but there remains the problem of estimating these scales, as well as the more fundamental question of the basic assumption that within a household division of expenditure is according to need. Sen (1984) has challenged this assumption forcefully at the empirical level, and it is difficult not to be skeptical of the household as the appropriate income-receiving unit, even after adjustment for adult-equivalent scales. In fact, in many cases the analyst is forced to

derive a poverty line for a household of average size and composition, and to apply this to each household's total income, irrespective of the size and composition of that household. It should be clear that the potential for error in such a procedure is large (see Bhalla and Vashishtha (1985) for an illustration of the differences that different definitions can make).

It would be a mistake to draw a nihilistic conclusion from the various conceptual and empirical problems in the specification of a poverty line. These problems have to be faced and disagreements narrowed by means of sensitivity analysis where different assumptions are tried out. Foster and Shorrocks (1985), for example, attempt to characterize situations where poverty-ranking between two distributions of income would remain unchanged for a range of poverty lines. At the operational level, while a critical attitude to data is healthy, it should not stop us from using what data there are to the best of our ability.

II. Measurement: The Poverty Index

Suppose that we agree on the definition of income, on the definition of the income-receiving unit, and, having aggregated our multidimensional concept of poverty, a poverty line defined for these units. The poverty line then cuts off the income-receiving units with income less than the poverty level. We could, of course, be content with simply listing each unit below the poverty line along with its income (i.e., the entire and complete picture of poverty). But this would not be operational, and sooner or later policymakers would ask us for some summary statistics which capture the pattern. This is where a discussion of the "poverty index" comes in. In order to discuss poverty indices we need some notation, and we have a choice as to whether we use discrete or continuous notation for the income distribution. In what follows, expressions are derived for both cases. In the discrete case, let there be n income-receiving units and let the income of unit i be denoted y_i. If the incomes are arranged in ascending order and the poverty line is z, then

$$y_1 \leq y_2 \leq \cdots \leq y_q < z \leq y_{q+1} \leq \cdots \leq y_n, \tag{1}$$

and there are q units below the poverty line. In the continuous case, let the density and cumulative density functions of income y be given respectively by

$$f(y);\ F(y) \tag{1a}$$

and let y lie between $\underline{y}$ and $\bar{y}$.

The most commonly used measure of poverty is the so-called head-count ratio, the fraction of income-receiving units that are below the poverty line. Denoting this by H, it follows that in the discrete and continuous cases, respectively,

$$H = \frac{q}{n} \tag{2}$$

$$H = F(z). \tag{2a}$$

How good a measure of poverty is this index? While identifying the number of poor, it ignores *how* poor the poor are, and therefore has the absurd property that it remains unchanged when a previously poor unit becomes even poorer. In fact, if we take a dollar from the poorest unit and give it to the richest unit, the head-count ratio would remain unchanged! To overcome these problems, the "income gap" ratio is often suggested as a supplement. Denoting this by I:

$$I = \frac{1}{zq}\sum_{i=1}^{q}(z - y_i) \tag{3}$$

$$I = \frac{1}{zF(z)}\int_{\underline{y}}^{z}(z - y)f(y)dy. \tag{3a}$$

This gives the average of the poverty gaps $(z - y)$ as a fraction of the poverty line. Of course, this does not take account of the number of poor in the sense that, if the poor units were exactly duplicated, I would remain unchanged. To take account of these problems in each of H and I, it is suggested that the product of the two would be more satisfactory. Denoting this by P_1,

$$P_1 = HI = \frac{1}{nz}\sum_{i=1}^{q}(z - y_i) \tag{4}$$

$$P_1 = HI = \int_{\underline{y}}^{z}\left(\frac{z - y}{z}\right)f(y)dy. \tag{4a}$$

P_1 is sensitive to both the number of poor and to how poor they are, and in this sense is an advance on either H or I separately.

In fact, P_1 has an interpretation which makes it extremely attractive from a policy point of view. Looking at equation (4), for example, it becomes clear that, but for the normalizing factor nz, P_1 measures the actual amount of income necessary to bring every unit below the poverty line up to the poverty line. This amount of income may not be sufficient, of course, since perfect targeting may not be possible, but it does give a lower bound on the transfer of resources required to eradicate poverty completely (for an application of this, see Kanbur, 1985a). Many policy-

makers would be interested in this figure, and it should be apparent how its calculation would be useful in planning exercises—we will return to these issues later on in the paper.

One objection to the P_1 measure is that it is insensitive to redistribution of income *within* the poor units. If a dollar of income was taken from the poorest unit and given to a unit which is richer but still well below the poverty line, the P_1 measure would remain unchanged. It could be argued that in such a situation a reasonable measure of poverty should go up. There are two ways of incorporating these considerations into the measurement of poverty, and each of these specify I in different ways. The first relies on finding a "representative income" of the poor units in the same way that one might find an "equally distributed equivalent" level of income for any distribution. The latter concept, introduced by Atkinson (1970), is that level of income which, when distributed equally, gives the same level of welfare as the existing distribution, welfare being measured by an egalitarian social welfare function (see Kanbur, 1984a). In the present situation we restrict attention to the distribution of income between the poor units only and calculate the equally distributed equivalent level of income for a specified social welfare function. Denoting this by y^{ede}, we have

$$I_{ede} = \frac{z - y^{ede}}{z}, \tag{5}$$

the income-gap ratio for the representative poor person. The poverty index is then

$$P_{ede} = HI_{ede}. \tag{6}$$

The best-known measure in this P_{ede} class is that of Sen (1976), who uses a "rank order weights" social welfare function. In this case we have the Sen poverty index, P_s:

$$P_s = P_{ede} = H[I + (1 - I)G_p], \tag{7}$$

where G_p is the Gini coefficient of poor income units.

While the best known of the recently developed poverty indices, the Sen index, uses a particular social welfare function, and other indices can be derived using other social welfare functions (see Kanbur, 1984a, and Anand and Kanbur, 1985). However, an alternative approach is to calculate the representative poverty gap, not by first calculating the representative income of the poor but by approaching the problem of the representative gap directly. This is the approach of Foster, Greer, and Thorbecke (1984), who suggest the following class of poverty indices:

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right)^\alpha \tag{8}$$

$$P_\alpha = \int_{\underline{y}}^{z}\left(\frac{z - y}{z}\right)^\alpha f(y)dy. \tag{8a}$$

The parameter $\alpha \geq 0$ measures how sensitive the index is to transfers between the poor units. For $\alpha > 1$, transfers from low to high incomes will increase poverty. Another way of looking at equation (8) is that it is the weighted sum of each proportional gap $(z - y/z)$, the weight being $\left(\frac{z - y}{z}\right)^{\alpha-1}$.

The class of indices put forward by Foster, Greer, and Thorbecke (1984) proves extremely useful for policy analysis, as we shall see in subsequent sections. It already contains equations (2) and (4) as special cases:

$$[P_\alpha]_{\alpha=0} = P_0 = H \tag{9}$$

$$[P_\alpha]_{\alpha=1} = P_1 = HI. \tag{10}$$

In fact, P_1 coincides with P_{ede} exactly when the social welfare function used to evaluate y_{ede} is linear additive, since in this case y^{ede} is simply the mean income of the poor. In general, however, the two classes of indices will differ and will have different properties. One property of the P_α class of indices, which proves to be convenient, is that it is decomposable across population subgroups. Divide the population into m subgroups, mutually exclusive and exhaustive, with group j having a fraction x_j of the population; $\sum_{j=1}^{m} x_j = 1$. Denote the poverty index in subgroup j by $P_{j,\alpha}$. Then,

$$P_\alpha = \sum_{j=1}^{m} x_j P_{j,\alpha}. \tag{11}$$

Thus, overall poverty can be written as a weighted sum of the subgroup poverty indices, the weights being the fraction of population accounted for by each group. The P_{ede} class of indices is not decomposable in this way, a factor which limits its usefulness in tractable analysis of policy options in targeting expenditure toward different groups, for example.

III. Alleviation Through Growth

Having discussed the measurement of poverty we now turn to the question of alleviation. To some, however, this is a nonquestion. Or, at

least, it is not a question that is separate from the question of achieving the fastest possible rate of growth. It is suggested that "trickle down" will solve the problem of poverty in due course and that redistributive measures that dampen growth will hurt the poor more than they benefit them in the long run. What is the basis for this view?

Let us imagine a scenario in which growth of real per capita income occurs without altering the relative distribution of income between the units. Let us suppose that the poverty line remains fixed so that we are only concerned with absolute poverty in the income dimension. How long will it take for the average poor person to cross the poverty line? Denoting the mean income of the poor by $\bar{y}_p$ and the annual per capita growth rate by g, it is clear that the time taken for the crossover to occur, T, is given by

$$T = [\ln (z/\bar{y}_p)]/[\ln (1+g)]. \tag{12}$$

To give an illustration of the order of magnitudes involved, let the mean income of the poor be one half of the poverty line. Then, if the annual per capita growth rate is 3 percent, it will take *more than twenty years* for the average poor person to be lifted out of poverty.

While obviously sensitive to the specification of the poverty line and the estimation of household incomes, a value of one half for $\bar{y}_p/z$ does not seem to be far off the mark (Altimir, 1982; Kanbur, 1985a) for many developing countries, while a 3 percent per annum growth rate of per capita income is certainly optimistic for many of the poorest countries, particularly in Africa. If we altered the $\bar{y}_p/z$ ratio to three quarters but chose a more realistic (but still optimistic) growth rate of 2 percent, the crossover time for the average poor person would still be fifteen years away. It is in this context that the urgency of poverty alleviation measures has to be seen. Waiting for three or four five-year plan periods for poverty alleviation on average (which does not take into account the poorest of the poor) may be too long given the objectives of some governments. Explicit redistributive strategies may well be introduced in response to slowness of "trickle down"—it is simply a matter of political arithmetic.

We will consider the possible growth costs of redistribution in the next section. For now let us note that the calculation in equation (12), however rough, gives an idea of the order of magnitude of the problem involved. In the analysis of poverty in a developing country, particularly its interactions with the growth process, it would be helpful to begin by producing an estimate of the "crossover" time on status quo assumptions, a figure which will provide an indication of the urgency of the problem and the role of growth in overcoming it.

IV. Alleviation Through Redistribution

Perfect Targeting

Given that the normal processes of growth are unlikely to have a major impact on poverty short of a couple of decades, policymakers have naturally been concerned with direct redistributive strategies for poverty alleviation. It is these strategies that we will be concerned with in this section. As a start, let us consider a "perfect" redistributive strategy which is costless in two senses—first, disbursing of income to the poor involves no leakages to the nonpoor and second, raising the required income from the nonpoor entails no costs in terms of efficiency and growth. This scenario is put forward not because of its realism, but as a benchmark which provides the basis for further discussion.

Consider the amount of resources required to eradicate poverty with perfect targeting to units below the poverty line. Such a transfer will, of course, reduce all poverty indices, in the P_{ede} class or in the P_α class, to zero. But one of these indices is related to the total amount of resources required. This is simply nzP_1 from equation (12) and can be calculated from a standard household income and expenditure survey (see Kanbur, 1985a, for a particular calculation). This will be the *minimum* financial cost of poverty eradication, a figure which would be of interest to planners and to external aid agencies. If these resources were not available through foreign aid, then the figure would indicate (the minimum) extent of the "redistributive effort" required from within the country.

In fact, Altimir (1982) takes the ratio of nzP_1 to the total income of the nonpoor as one indicator of the redistributive effort required to eradicate poverty (see also Anand, 1983). If the resources needed are raised through redistributive taxation, and this affects the labor supply of those taxed, then the overall "size of cake" would get smaller, and this would be the cost of poverty eradication. In Kanbur (1985a), the ratio of nzP_1 to the total incomes of those who save is calculated to give an indication of how much the national savings ratio would be affected. For the specific case considered, Fiji, the answer comes out that the effect is small. Fiji is a society with relatively little poverty and relatively high inequality. As a result, nzP_1 is small and the ratio of this to the (relatively high) incomes of the saving rich turns out to be quite small. It should be clear that the impact of redistributive effort on growth will vary from country to country. In a country like India, with high poverty but relatively low inequality (see Bhalla and Vashishtha, 1985) the picture is likely to be very different from that in Fiji. What we do have here, however, is a framework in which benchmark orders of magnitude can

be established. Alongside the crossover time in equation (12), the ratio of nzP_1 to the total incomes of the saving classes stands as a statistic which can, and should, be calculated from standard household income and expenditure surveys as a preliminary check on the extent of the problem before a more detailed analysis is conducted.

Imperfect Targeting

Perfect targeting of public expenditures to those below the poverty line is, of course, a policymaker's pipe dream. In reality the administrative costs of schemes which attempt even moderate targeting turn out to be excessive, and any scheme which relies on bureaucratic vetting of low-income households on a case-by-case basis is open to corruption and manipulation. In practice, the policymaker has options that are somewhere between the two extremes of perfect targeting and no targeting at all (nonredistributive growth, "trickle down," is an example of the latter). Usually the policy instruments available allow a distinction to be drawn between broad subgroups in the population, and expenditure can be directed toward these subgroups, it being understood that there will be leakages to those above the poverty line within each subgroup. The hope is that by using the different income distribution characteristics of the different groups, in particular their different patterns of poverty, to guide the allocational rules for public expenditure, a better targeting toward the poor can be achieved than by treating the groups identically.

There are many such instruments that come to mind. Price support for particular crops helps to raise the income of poor farmers who grow these crops, but it also raises the income of rich farmers. Which of a number of crops should have the lion's share of the "poverty alleviation budget"? Different allocations of the central budget to regional authorities will affect the poor differently depending on how the latter spend their budget. Given the model for regional authorities' expenditure, how should a central government allocate its budget to the regions? Food subsidies and subsidies for fuel affect rich and poor differently. Which commodities should the government subsidize most? If the subsidy budget is to be cut, which commodities should best bear the brunt of the cut, bearing in mind the consequences for poverty? While these questions are important and topical in developing countries, the general question of targeting for poverty alleviation is also faced by welfare schemes in the rich countries where generalized instruments such as raising state pensions for all are seen as being too costly, but finer targeting by means testing is resisted politically (on these issues, see United Kingdom, 1985).

Before considering a specific application to food subsidies, let us consider a general framework for analyzing imperfect targeting. In Kanbur (1984b), two types of stylized instruments are considered—those that increase each income in a group by the same additive amount and those that increase each income by a given multiplicative factor. Examples of the former are tax threshold increases when there is a constant marginal tax rate, or raising state pensions or unemployment benefits. Examples of the latter are changes in marginal tax rates or price support.

Let us start off with the additive case. Taking first the income distribution as a whole, an additive increase in everybody's income makes the P_α poverty index

$$P_\alpha = \int_{\underline{y}}^{z-\Delta} \left(\frac{z - y - \Delta}{z}\right)^\alpha f(y)dy. \tag{13}$$

The budgetary cost of this expenditure (remembering that population size is normalized at unity) is Δ. The impact on poverty of an increase in Δ can be shown to be (see Kanbur, 1985b)

$$\frac{dP_\alpha}{d\Delta} = -\frac{\alpha}{z} P_{\alpha-1}. \tag{14}$$

Equation (14) says that the shadow price of budgetary expenditure, in this additive framework when the objective is to minimize P_α, is proportional to $P_{\alpha-1}$. The intuition behind this is clearest when $\alpha = 1$. The poverty measure is simply P_1, which is proportional to the sum of the poverty gaps. The amount by which this sum changes when each income increases marginally is given by the number of units below the poverty line, which is proportional to P_0, the head-count ratio. Put another way, when the poverty index is proportional to the poverty gap, the shadow price is proportional to the head-count ratio. Thus, the latter, while not in itself being the objective of policy, turns out to play an important role as an *indicator* of the value of budgetary expenditure.

Let the population be divided into two mutually exclusive and exhaustive subgroups, indexed 1 and 2. Then,

$$P_\alpha = x_1 P_{1,\alpha} + x_2 P_{2,\alpha}. \tag{15}$$

where x_1 and x_2 are the proportions of population accounted for by the two groups ($x_1 + x_2 = 1$). Denote the total budget by B and let the amounts spent on the two groups be B_1 and B_2 ($B_1 + B_2 = B$). Assuming that this expenditure is such as to increase incomes equally within each group, it follows that the additive shift in the subgroup distributions is of an amount B_1/x_1 in group 1 and B_2/x_2. Applying the restriction that $B_2 = B - B_1$, it can be shown (see Kanbur, 1985b) that

$$\frac{dP_\alpha}{dB_1} = -\frac{\alpha}{z}[P_{1,\alpha-1} - P_{2,\alpha-1}]. \tag{16}$$

The budgetary rule for poverty alleviation is clear from equation (16). If minimization of P_α is the policymakers' objective, then relatively more should be spent on the group that has the higher value of $P_{\alpha-1}$. Thus, if minimization of poverty gap is the objective, the "budgetary stance" should be more favorable to the group that has the higher head-count ratio. Here again, the head-count ratio, while *not* in itself the *objective* of policy, plays a central role as an *indicator* for the direction of policy. The case for having reliable estimates of the head-count ratio, for subgroups toward which policy instruments are targeted, thus becomes clear.

What about instruments that are multiplicative in nature, in the sense that through their operation incomes in a group increase by the same multiplicative factor? It can be shown that the expressions analogous to equations (13) and (14), where Δ is now the multiplicative factor, are

$$P_\alpha = \int_{\underline{y}}^{z/(1+\Delta)} \{[z - y(1+\Delta)]/z\}^\alpha f(y)dy \tag{17}$$

$$\frac{dP_\alpha}{d\Delta} = -\frac{\alpha}{1+\Delta}[P_{\alpha-1} - P_\alpha] < 0. \tag{18}$$

Thus, the shadow price of budgetary expenditure is now proportional to the difference between P_α and $P_{\alpha-1}$.

With two groups whose means are M_1 and M_2, when the budgetary allocations are B_1 and B_2 $(B_1 + B_2 = B)$, the multiplicative factors for each group are (B_1/x_1M_1) and (B_2/x_2M_2). Using these it can be shown that

$$\frac{dP_\alpha}{dB_1} = \frac{\alpha x_1}{B_1 + x_1M_1}[P_{1,\alpha} - P_{1,\alpha-1}] - \frac{\alpha x_2}{B_2 + x_2M_2}[P_{2,\alpha} - P_{2,\alpha-1}]. \tag{19}$$

While more complicated than equation (16), equation (19) is nevertheless calculable from standard summary statistics on poverty—the poverty gap and the head-count ratio for $\alpha = 1$. If the instrument we are considering using is at all multiplicative in character, then equation (19) gives an indication of the budgetary stance toward the two groups.

One of the most controversial budgetary issues in recent years has been the question of food subsidies and whether or not to reduce the total amount spent on them. Some advisors to policymakers have argued that food (and fuel) subsidies create unwarranted budgetary exposure, and, when it is countered that these subsidies are necessary for poverty alleviation, they reply that as they stand food subsidies are not targeted toward the poor. If targeting were to be improved, the poverty allevia-

tion objectives could be met with less budgetary exposure. There are two aspects to this targeting. One is the means testing of households directly in order to establish eligibility (see Mateus, 1983) and the other is to achieve better targeting by subsidizing particular commodities more than others (Schneider, 1984).

As argued earlier, while means testing is the most efficient way of identifying poor households, it is not without administrative and political costs. Achieving a better targeted pattern of food subsidies must still be high on the agenda of policy reform. But which commodities should be subsidized if the objective is to reduce poverty? A detailed analysis is provided in Besley and Kanbur (1985). Here we provide a simple illustration to bring out the main policy conclusion of interest. Consider two commodities, indexed 1 and 2, which are subsidized at rates S_1 and S_2. In other words, the prices at which consumers buy these items are, respectively, S_1 and S_2 below opportunity cost (say, world prices). Then *to a first order of approximation,* ignoring price elasticities, this is equivalent to a transfer of income of $S_1 Q_1(y) + S_2 Q_2(y)$ to a unit which consumes Q_1 and Q_2 of the two commodities, shown to depend on the unit's income level y. The poverty index can thus be written

$$P_\alpha = \int_{\underline{y}}^{\hat{z}} \left\{ \frac{z - [y + S_1 Q_1(y) + S_2 Q_2(y)]}{z} \right\}^\alpha f(y)dy \tag{20}$$

where $\hat{z}$ is the solution to

$$z = [\hat{z} + S_1 Q_1(\hat{z}) + S_2 Q_2(\hat{z})],$$

and we assume that Q_1 and Q_2 are normal goods. Now let

$$\bar{Q}_i = \int_{\underline{y}}^{\bar{y}} Q_i(y) f(y)dy; \; i = 1,2$$

and let the government consider a marginal change in the subsidy pattern *at constant budgetary expenditure.* Thus we analyze changes in equation (20) when S_1 changes, subject to the restriction that

$$\frac{dS_2}{dS_1} = -\frac{\bar{Q}_1}{\bar{Q}_2}. \tag{21}$$

Differentiating equation (20) with respect to S_1 and using equation (21), we get

$$\frac{dP_\alpha}{dS_1} = -\frac{\alpha}{z} \int_{\underline{y}}^{\hat{z}} \left\{ \frac{z - [y + S_1 Q_1(y) + S_2 Q_2(y)]}{z} \right\}^{\alpha-1} \left\{ Q_1(y) - \frac{\bar{Q}_1}{\bar{Q}_2} Q_2(y) \right\} f(y)dy, \tag{22}$$

when $\alpha = 1$, this reduces to

$$\frac{dP_1}{dS_1} = -\frac{\alpha}{z}\left[\frac{\overline{Q}_1^P}{\overline{Q}_1} - \frac{\overline{Q}_2^P}{\overline{Q}_2}\right]\overline{Q}_1 \tag{23}$$

where $\overline{Q}_1^P$ and $\overline{Q}_2^P$ are the consumption of the two commodities accounted for by those below the poverty line.

Equation (23) makes precise the argument put forward by a number of authors (e.g., Reutlinger, 1985) that commodities whose consumption by the poor is a large fraction of total consumption are the ones that should be subsidized. Notice, in particular, that under these assumptions there is no need to estimate demand systems. The indicator $\overline{Q}_i^P / \overline{Q}_i$ can be worked out for each commodity grouping directly from a household income and expenditure survey. The policy advice is then to restructure subsidies in the direction of commodities with higher values of this indicator. Of course, the above analysis leaves out own price and cross price effects and is restricted to the $\alpha = 1$ case. Also, the subsidies considered are marginal subsidies, whereas in many situations a ration is provided at below market prices—an inframarginal subsidy. These and other issues in the analysis of food subsidies are considered in Besley and Kanbur (1987).

Alleviation and Generalized Redistribution: Inequality Versus Poverty

We have considered the effect of growth on poverty and characterized it as an untargeted general increase in incomes. We have also considered redistribution with different degrees of targeting. However, there is a type of redistribution that might be termed generalized redistribution. By this we mean redistribution whose object and whose end result is to reduce relative inequality. To some, a reduction in relative inequality is the same as a reduction in poverty and sometimes in the literature the two are used synonymously. It should be clear, however, that a reduction in inequality may or may not be associated with a reduction in poverty. Fields (1979) and Anand and Kanbur (1985) analyze situations where the two may conflict. The simplest illustration is where we start from everybody in the population being equally poor and let one person move to an income level above the poverty line. Poverty has declined, but measured inequality has increased.

Poverty is essentially a statement about the income distribution truncated at the poverty line, while inequality concerns the whole distribution above and below the poverty line. The two can, and do, behave

differently in practice, and simple inferences from a decline or an increase in the Gini coefficient, for example, to a decline or an increase in poverty should be treated with caution. There are, however, cases when a decline in inequality necessarily implies a decline in poverty as measured by a particular index. When the entire Lorenz curve of a distribution moves up, so that there is an "unambiguous" decline in inequality, then if the mean income has stayed constant or increased, poverty as measured by P_α for $\alpha = 1$ must necessarily fall. A detailed analysis is provided by Foster and Shorrocks (1985), but the basic argument can be seen by taking the definition of P_α for $\alpha = 1$ and integrating by parts to give

$$P_1 = \frac{1}{z}\int_{\underline{y}}^{z}(z - y)f(y)dy = \frac{1}{z}\int_{\underline{y}}^{z}F(y)dy. \tag{24}$$

Thus, P_1 decreases if and only if $\int_{\underline{y}}^{z}F(y)dy$ decreases. But if mean income remains constant then, as Atkinson (1970) showed, an upward movement of the Lorenz curve is equivalent to a decrease of $\int_{\underline{y}}^{z}F(y)dy$ for any value of z. If mean income increases, the effect is further strengthened. Except in such situations, however, indices of poverty and inequality may well move in opposite directions.

V. Macroeconomic Adjustment and Poverty

The analysis of poverty has traditionally been conducted as a branch of microeconomics. Consumer choice, labor market behavior, agricultural production decisions, demographic patterns—these have provided the framework for poverty analysis. While this emphasis is clearly justified, in recent years there has been a growing awareness that the macroeconomic picture influences the extent of poverty. This is particularly so in developing countries where social security systems are not adequate to protect individuals against consequences of macroeconomic fluctuations. Most particularly, the recent emergence of the debt crisis and the need to adjust to large and growing balance of payments deficits has opened up the question of the burden of adjustment. Who should bear this burden? Assuming that the objective of policy is to protect the poorest in a period of macroeconomic and structural adjustment, what are the consequences of the different instruments? Research in this area has been largely neglected (see Addison and Demery, 1985) but the current world situation demands that this be rectified.

Let us consider, then, a developing country that is in balance of payments difficulties and is considering adjustment. The various instru-

ments discussed in the literature include devaluation, credit restraint, demand contraction, reduction in government deficits, "price reform"—in particular, increasing the domestic price of imports that have previously been too cheap relative to world prices and decreasing export taxes—and many others. Each of these instruments has its own modus operandi, and this can be discussed in some detail (see Addison and Demery (1985) for a good summary of the literature). But the net effect of these instruments, of a stabilization program, can be assessed in terms of the twin requirements of expenditure reduction and expenditure switching. The bottom line is to reduce the excess demand for traded goods which manifests itself in a balance of payments deficit. In the usual Salter-Swan framework this requires a curtailing of overall demand and a switch of the composition of national output from nontraded goods to traded goods. The latter in turn entails an increase in the incomes of factors employed in the traded goods sector.

Macroeconomic adjustment, therefore, necessarily involves redistribution of income, at least with the instruments currently available and in use. Indeed, the very method by which these instruments work is by increasing the returns in some activities and decreasing them in others. Not surprisingly, therefore, such adjustment is often politically charged and controversial. Our task here, however, is to focus on the consequences of adjustment for the poor (for a discussion of the political economy of agricultural price reform, see Braverman and Kanbur, 1985). It is sometimes argued, for example, that devaluation tends to reduce poverty inasmuch as it shifts income from the nontraded to traded sector since, particularly in an African context where much of the traded sector might comprise small farmers, the incidence of poverty is higher in the latter sector. Can this argument be formalized?

Abstracting from complexities that are undoubtedly important, let us imagine the population divided into two mutually exclusive and exhaustive sectors. Let the population share of the first sector be x_1, its mean income M_1, and its share in national income π_1. We will consider the effects of an increase in π_1 and a corresponding decrease in $\pi_2 = (1 - \pi_1)$. Thus, this is a pure expenditure-switching exercise; expenditure reduction will be considered presently. The key question is how the removal of income from sector 1 and its transfer to sector 2 is to be modeled. Without going into the explicit nature of the instruments in great detail, we can think of additive and multiplicative changes in individuals' incomes, in the manner discussed in the previous section. Let us start with the additive case. If everybody's income in sector 1 goes down by an amount Δ_1, if this income is transferred to sector 2, and if everybody's income in sector 2 goes up by an amount of Δ_2, then

$$\Delta_2 = \Delta_1 \frac{x_1}{x_2}, \tag{25}$$

and the new share of sector 1 is

$$\pi_1 = \frac{x_1(M_1 - \Delta_1)}{M}, \tag{26}$$

where

$$M = x_1 M_1 + x_2 M_2, \tag{27}$$

the overall mean income in the economy.

With this setup, overall poverty at the national level is given by

$$P_\alpha = x_1 \int_y^{z+\Delta_1} \left[\frac{z - y + \Delta_1}{z}\right]^\alpha f_1(y)dy + x_2 \int_y^{z-\Delta_2} \left[\frac{z - y - \Delta_2}{z}\right]^\alpha f_2(y)dy \tag{28}$$

where $f_1(y)$ and $f_2(y)$ are the income densities in the two sectors. The effect of a marginal change in Δ_1, using equations (25)–(28), can be shown to be

$$\frac{dP_\alpha}{d\Delta_1} = \frac{\alpha x_1}{z}[P_{1,\alpha-1} - P_{2,\alpha-1}] \tag{29}$$

and

$$\frac{dP_\alpha}{d\pi_1} = -\frac{\alpha M}{z}[P_{1,\alpha-1} - P_{2,\alpha-1}]. \tag{30}$$

When $\alpha = 1$, this reduces to

$$\frac{dP_1}{d\pi_1} = -\frac{M}{z}[H_1 - H_2]. \tag{31}$$

Thus, if the policy objective is minimization of the poverty gap, the appropriate indicator for the sort of expenditure-switching exercise modeled here is the difference between the head-count ratios in the two sectors. If the head-count ratio in the traded goods sector exceeds the head-count ratio in the nontraded goods sector, then an additive transfer of income across the two sectors will reduce poverty *as measured by the poverty gap index,* P_1.

The additive-switching case is useful as an illustration, but it is clear that many instruments—particularly price instruments—will have a multiplicative effect on incomes. The first-round effect of a devaluation, for example, will be to increase the incomes of farmers producing for export

in proportion to their marketed surplus. The impact on real income of the nontraded sector employees will, to a first order of approximation, be in proportion to their consumption and hence to their incomes. A stylized representation of the expenditure-switching effect of devaluation would thus be a decrease of all incomes in sector 1 by a multiplicative factor Δ_1 and an increase of all incomes in sector 2 by a factor Δ_2, with

$$\Delta_2 = \frac{x_1 M_1}{x_2 M_2}\Delta_1. \tag{32}$$

In this case,

$$P_\alpha = x_1 \int_{\underline{y}}^{z/(1-\Delta_1)} \left[\frac{z - (y/1-\Delta_1)}{z}\right]^\alpha f_1(y)dy + x_2 \int_{\underline{y}}^{z/(1+\Delta_2)} \left[\frac{z - y(1+\Delta_2)}{z}\right]^\alpha f_2(y)dy \tag{33}$$

and for marginal changes in Δ_1 (i.e., around $\Delta_1 = 0$),

$$\frac{dP_\alpha}{d\Delta_1} = \alpha x_1 M_1 \left\{\frac{1}{M_1}[P_{1,\alpha-1} - P_{1,\alpha}] - \frac{1}{M_2}[P_{2,\alpha-1} - P_{2,\alpha}]\right\} \tag{34}$$

$$\frac{dP_\alpha}{d\pi_1} = -\alpha M \left\{\frac{1}{M_1}[P_{1,\alpha-1} - P_{1,\alpha}] - \frac{1}{M_2}[P_{2,\alpha-1} - P_{2,\alpha}]\right\}. \tag{35}$$

While more complicated than equation (30), equation (35) nevertheless involves only a small number of summary statistics about the distribution of income in the two sectors. For $\alpha = 1$ it requires knowledge of sectoral means, head-count ratios, and poverty gaps.

For mixed additive and multiplicative shifts, similar formulas can be derived. When income removal from sector 1 is additive but income increase in sector 2 is multiplicative, it can be shown that for marginal shifts

$$\frac{dP_\alpha}{d\pi_1} = -\frac{\alpha M}{z}\left\{P_{1,\alpha-1} - \frac{z}{M_2}[P_{2,\alpha-1} - P_{2,\alpha}]\right\}. \tag{36}$$

When income removal from sector 1 is multiplicative but income addition to sector 2 is additive, it can similarly be shown that

$$\frac{dP_\alpha}{d\pi_1} = -\frac{\alpha M}{z}\left\{\frac{z}{M_1}[P_{1,\alpha-1} - P_{1,\alpha}] - P_{2,\alpha-1}\right\}. \tag{37}$$

As is readily seen, these formulas contain a mixture of terms from the additive and the multiplicative cases.

The analysis presented above may seem to be too simplistic. However, while it abstracts from many real-world features, it is nevertheless a start in the direction of using distributional data, as available in standard household income expenditure surveys, to assess the consequences of expenditure-switching strategies for poverty. Whatever the detail of policy design, the "bottom line," at least so far as macroadjustment is concerned, is a reduction in the balance of payments deficit. One component of this is a shift in the composition of national output from nontraded to traded goods. As Johnson and Salop (1980) note, "in most cases, the success of a stabilization program can be judged in terms of its effects on the ratio of the prices of nontraded goods to those of traded goods." If this is so, then the next step of the argument is to analyze how this relative price change affects income distribution in the two sectors. While highly complicated models can be developed which compute the general equilibrium responses to the policy change, an operational device is to restrict attention to additive and multiplicative shifts—the effect of most policy instruments can be approximated, to a first order, by some combination of these shifts. Our task is to predict the likely impact of macroadjustment on poverty, using information currently available, and the formulas derived here provide a first-cut answer to some of these questions. Further disaggregation should not prove problematic. If the traded goods sector is itself disaggregated further into sectors that benefit more and sectors that benefit less from expenditure switching, and information on head-count ratios and poverty gaps is available at this level of disaggregation, then the analysis presented here can be easily generalized.

A major problem in the analysis advanced here is the assumption that the population engaged in the traded and the nontraded sectors is mutually exclusive. While for some countries this may not be too bad an approximation, in other countries agricultural households may derive income both from crops which are sold internationally and from crops which are only traded domestically. Another problem, empirical in nature, is the implementation of the traded-nontraded sector divide in a setting where most data sources do not recognize this distinction. An urban-rural divide may provide a close approximation in some settings but not in others—in many Asian countries manufacturing exports are produced by industries located in the urban sector while the rural sector produces food for domestic markets. Detailed knowledge of the structure of particular economies will have to be brought to bear on the analysis of macroadjustment and poverty.

So far as expenditure reduction is concerned, the major question is, who bears the burden? Or rather, who ought to bear the burden? Once again, the particular instruments used will each have different types of impacts. The effect of instruments that bring about a general decline in economic activity depends on whether incomes are reduced additively or multiplicatively—the effects on poverty are readily seen by simply reinterpreting equations (14) and (18). The marginal impact on the poverty gap of an additive shift in the income distribution, for example, is given by the head-count ratio nationally. However, we might choose to distribute this burden of cuts in income selectively across broadly defined groups. Some such instruments are general cuts in food subsidies, and cuts in farm price supports or subsidies to farm inputs. Once again, if we are prepared to accept the additive or multiplicative approximation of the effects of these various instruments, the results of Section IV can be brought to bear—instead of the problem being one of optimal disbursement of a poverty alleviation budget, the problem is now one of optimal cuts in incomes, optimal in the sense that the increase in poverty is as low as possible. In an additive framework, the head-count ratio once again plays a powerful role as an indicator if the objective is to keep the poverty gap as low as possible. Groups with the lowest head-count ratios should bear a disproportionate burden of adjustment. In a multiplicative framework—for example, where the government is contemplating cutting both urban food subsidies and farm price supports—the indicator is related to the value of $P_\alpha - P_{\alpha-1}$ in each group, as specified in equation (19).

VI. Further Research

While there are still many conceptual issues to be sorted out in the discussion of poverty and the standard of living (see, for example, Sen, 1985, and Kanbur, 1985b), the major returns to further research in this area would seem to be in the empirical and in the policy design directions. These two directions are closely related, since policy design must perforce rely on available information and make intelligent use of it.

At the empirical level, there is clearly a case for a great deal of sensitivity analysis with regard to the definition of income, income-receiving unit, and the poverty line (see, for example, Bhalla and Vashishtha (1985) for a good illustration of the sort of exercises that can be conducted). For each of these calculations of poverty we would suggest a corresponding calculation of the "crossover point," the time taken for the average poor person to cross the poverty line, as discussed in Section III. In fact, it would, in general, be a useful addition to the stylized

facts about a country to have its crossover time calculated and published. This would provide a benchmark for analysis and would give an indication of the concern that poverty should be causing in that country.

While collection of better data and appropriate sensitivity analysis loom large on the research agenda, it would seem that it is the question of optimal policy design for poverty alleviation which dominates. How best to allocate government expenditure between different groups if the object is to reduce poverty? The discussion in Section IV gives the beginnings of an answer, and much more needs to be done. Apart from applying the formulas derived there to particular cases, which would involve a detailed discussion of whether the additive or the multiplicative formulation was better in any specific context, there remains the theoretical task of deriving results for many groups and for the case where the population is not divided mutually exclusively between groups toward which the various instruments are targeted.

The optimal design of food and fuel subsidies, although a part of the general discussion of budgetary rules for poverty alleviation, is an important enough topic in the current situation to be given special attention on its own. A standard conflict between policymakers and outside advisors is that the former claim the large expenditures on these subsidies are justified because of the poverty alleviation objective, while the latter claim that these are poorly targeted and more alleviation could be achieved with less resources. The questions of political economy will always dominate, of course, since no politician can afford to offend his constituency by sanctioning the reduction of subsidies which benefit that group, but the question of an *optimal* pattern of food subsidies remains. What exactly should be recommended if the objective is poverty minimization? Some research is already under way here (Schneider, 1984; Besley and Kanbur, 1987; Reutlinger, 1985) but much more theoretical and empirical work is needed.

Finally, we come to the topic of the impact of macroeconomic adjustment on poverty. As more and more developing countries have been forced by circumstances to rein in their economies, to encourage the production of tradables, and to reduce government expenditure, the twin questions of who bears the burden of this adjustment and who ought to bear the burden have become prominent. But the literature on the links between adjustment at the macroeconomic level and poverty at the microeconomic level remains small and fragmented, although some research is now under way (see the survey by Addison and Demery, 1985). In this paper we have suggested a particular method of building the bridge between macroadjustment and poverty. It relies on the fact that the bottom line of most cases of macroeconomic adjustment is the

achievement of a sufficient degree of expenditure reduction and expenditure switching to attain balance of payments equilibrium. If we are prepared to accept relatively simple and stylized models of these twin requirements, existing distributional information could provide a guide as to the likely consequences for poverty. The technique suggested here and the other theoretical frameworks in the literature seem to demand work of an empirical and a policy-oriented nature.

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