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Distributional Implications of Government Tax and Expenditure
Policies: Issues, Problems, and Methodology 1/

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Abstract

This paper examines the methodological issues arising in the
measurement of the distributional impact of tax and expenditure
policies, with emphasis on the problems related to the measurement of
the impact of adjustment programs on the welfare of the poor. Both
conceptual and empirical considerations suggest that public expenditures
are a more potent instrument for distributional purposes than taxes but
are also more difficult to analyze and evaluate. The paper concludes
that more research is needed toward a better measurement of expenditure
benefits.

<u>JEL Classification Numbers</u>

322, 323

<div align="center">Contents</div>

Summary

This paper examines the conceptual and empirical problems arising in the estimation of the impact of government tax and expenditure policies on income distribution within the framework of adjustment programs. Special emphasis is placed on issues related to the measurement of the impact of adjustment programs on the economic position of poverty groups.

The paper discusses the conceptual issues related to the time frame, the difference between primary and secondary income distribution, the distinction between nominal and real income, the choice of the appropriate unit of observation, and the measurement of the informal sector. The counterfactual argument is also discussed, and it is argued that its usefulness is limited by empirical constraints, especially within the short term. After a discussion of the pros and cons of using a general equilibrium methodology, the paper concludes that general equilibrium models, which use a stylistic split of income between factors of production, may not serve well the requirements of a comprehensive distributional investigation, especially one encompassing poverty groups.

The measurement of net fiscal incidence is discussed in greater detail, and emphasis is place on the expenditure side, which is shown to be a more effective tool for income redistribution than the tax side. It is argued that the functional classification of expenditures is more relevant for the evaluation of distributional considerations than the economic classification, and a grouping is proposed that arguably best reflects the differential impact of public spending on real incomes.

The paper concludes that more research is needed on expenditure incidence, which is currently supported by only a limited theoretical framework.

I. Introduction

In the past few years there has been a growing interest in assessing the impact of stabilization programs on distributional and, more generally, social issues. In many developing countries the adjustment efforts necessitated by the two oil crises of the 1970s and the attendant explosion of the external debt situation undoubtedly affected the welfare of the population and frequently led to social unrest and political upheaval. Characteristically, the most vocal group in opposing the adjustment programs has been the urban middle class, or, more generally, groups whose welfare has been affected only at the margin. However, in many cases the economic consequences of austerity programs have threatened the survival of the least vocal segments of society, namely the urban and the rural poor. It is for that reason that a lot of emphasis has recently been placed on evaluating the impact of adjustment programs on the nutritional and health needs of the poor, over and above the traditional concern of income (re)distribution and equity.

Yet, our knowledge about distributional consequences of stabilization policies in developing countries is still very limited. Dethier (1986) has called this "a scandalous omission," but realistically speaking such an endeavor would confront methodological and empirical difficulties of major proportions. It is not surprising, therefore, that research on these issues has so far been limited in scope and methodological breadth. General methodologies that appear suitable for this kind of investigation are Computable General Equilibrium (CGE) models, Social Accounting Matrices (SAM) methodologies, and ad hoc partial equilibrium studies. In a sense, different techniques bring about a refreshing variety of insightful approaches. After a period of experimentation, however, it became apparent that, to a certain extent, the different methodologies also defined (explicitly or implicitly) the problem itself, instead of the other way around. Moreover, it has become increasingly difficult to combine or extend the research in a particular area, unless the new effort duplicates the old methodology; otherwise, serious problems of comparability would arise in evaluating these results.

This is a paper on the methodological issues arising in the measurement of the distributional impact of tax and expenditure policies, especially their impact on the poor. 1/ It is a companion paper to an earlier Occasional Paper (International Monetary Fund (1986)) that provided a general introduction to the conceptual and empirical problems associated with the measurement of the distributional implications of Fund-supported adjustment programs. In that paper it

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1/ Following Addison and Demery (1985), the term "income distribution" in this paper should be understood to cover both the issue of inequality and the incidence of poverty. For a discussion of the analytical aspects of poverty, see Kanbur (1987).

was stated that although "the official Fund position on distributional issues remains that distributional policies are entirely a sovereign issue...if the authorities ask the Fund to evaluate alternative approaches to meeting their distributional concerns the Fund is (and has been) prepared to do so." 1/ The emphasis of the present paper will be on the exposition of an analytical framework for a conceptually consistent treatment of tax and expenditure policies, following an evaluation of the existing tradeoffs between theoretically desirable but empirically infeasible approaches to the measurement of the distributional impact of fiscal policy.

The paper consists of two broad parts. The first discusses the fundamental issues involved in the assessment of the impact on income distribution of fiscal policies. The major topics are the time frame, the distinction between primary and secondary income distribution, the measurement of nominal vs. real incomes, the choice of the unit of observation, and the measurement of the informal sector. 2/ The first part also discusses the usefulness and relevance of general equilibrium methodologies for the evaluation of distributional effects in the short run. The second part of the paper develops a consistent analytical framework for assessing the short-run distributional impact of budgetary revenues and expenditures. At the end, suggestions for future research and the expected data requirements are pointed out. The suggested analytical framework should be viewed as the best compromise between conceptual optimality and practicality, especially in the face of severe data constraints that usually characterize the countries undertaking adjustment programs.

II. The Fundamental Issues

1. The time frame

An important conceptual consideration is the choice of the time frame for the analysis. The time frame (short run vs. medium and long run) is intimately related to the distinction between stabilization versus structural adjustment programs. Typically, a stabilization program places emphasis on demand management and attempts to move the economy towards full capacity for a given macroeconomic equilibrium. On the other hand, a structural adjustment program focuses primarily on

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1/ International Monetary Fund (1986), p. 4.
2/ Another important conceptual issue, that of the counterfactual, is discussed in the Fund Occasional Paper mentioned earlier and is not addressed here. See, however, p. 13 below.

supply-side effects and attempts to increase the productive capacity of the economy, i.e., to change the point of macroeconomic equilibrium. 1/

A short-term time frame would, therefore, concentrate much more on the demand management effects, as reflected on the uses side of a household's accounts, than on the supply-management effects, which would typically manifest themselves on the sources side over a longer period of time. In other words, if the analysis is confined to a short time frame, it will capture the impact on real incomes and consumption for a given level of productive capacity, but will ignore the impact on changes in the productive capacity of economic agents. Heuristically speaking, therefore, the most constructive approach to the question of the relevant time frame is to accept axiomatically the existence of a J curve in the economy's trajectory and measure the short-term costs of adjustment, before considering the existence of (potential) longer-term benefits.

The choice of the relevant time frame is related to the distinction between poverty and income distribution, although it is not highlighted in this paper. Clearly, income distribution is a relative concept, whereas the concept of poverty may involve absolute criteria. Theoretically, a set of fiscal policies may leave income distribution unchanged (as measured, for example, by an overall index of inequality, such as the Gini coefficient), but absolute poverty may still have increased. If, therefore, the focus of the analysis is primarily on the poor rather than on income distribution as a whole, a short-run approach to fiscal incidence appears more defensible. Pinstrup-Andersen (1986) convincingly states that

> "...even if the ultimate benefits to the poor of adjustment programs could more than offset their short-run losses, the absolute poor may be unable to deal with the short-term losses, even with the expectations of large longer-run gains, because they are already operating at the minimum subsistence level with few or no opportunities for borrowing to carry them over until the long-term benefits materialize. This is why the short-term effects on the poor are so important."

2. Primary vs. secondary income distribution

Stewart's (1983) distinction between the primary and the secondary income distribution highlights the importance of using the appropriate methodology for analyzing the distributional impact of fiscal actions and, additionally, of differentiating between the short and the longer

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1/ Such a distinction is loose and not always valid. To identify, for example, changes in relative prices exclusively with structural programs, as some researchers have suggested, would conspicuously ignore the presence of exchange rate policies in the majority of Fund-supported stabilization programs.

term. Other studies have also clearly recognized the importance of distinguishing between the primary and the secondary income distribution (e.g., Thorbecke (1987); OECD (1986)).

Paraphrasing (and generalizing) Stewart's definition, the primary income distribution is determined by the institutional setting of the economy whereas the secondary income distribution is derived from (and is directly linked with) the distributional implications of fiscal actions. The distinction between the primary and the secondary income distribution may be best understood by considering an extreme case, i.e., an economy in the absence of government. In that case, all distributional changes would stem from changes in the goods and factor market equilibria, and there would be no difference between the primary and the secondary income distribution. When government is introduced, there is a once-and-for-all change in the institutional setting, which will affect the behavior of economic agents and a new primary distribution will emerge. Moreover, through variations in public expenditure and taxation the government affects the real incomes of households and thus generates a secondary income distribution. Conceptually, a problem arises insofar as budgetary policies, whether addressing exclusively distributional considerations or not, may induce changes in the behavior of economic agents that will yield a new primary income distribution. It would then be difficult to identify the effects of government policies with only the secondary income distribution, unless the outcome of such policies can be isolated from the induced effects on the primary distribution. In general, the nature of adjustment programs supports the presumption that, because fiscal policy actions are typically limited and budgetary measures are marginal, the fiscal outcome does not per se affect the institutional setting of the economy (De Wulf (1980)). Therefore, in the short run fiscal policies predominantly affect only the secondary distribution. In the longer run, they may also affect the primary distribution through mobility of factors of production, changes in the demand for and supply of factor services, and other general equilibrium considerations.

3.   Nominal vs. real incomes

Another important consideration relates to the interface between the impact of the fiscal instruments on nominal incomes and the impact of the total adjustment package on inflation, which will determine the real incomes of the income groups. 1/ Even if an adjustment program

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1/ This is a general problem with indexation, and several studies have discussed the importance of deflating each socioeconomic group's income by the relevant cost of living index. For example, Addison and Demery (1985) cite a study on Sri Lanka (Lee (1977)), in which between 1963-73 the real income of the bottom 60 percent of the income distribution was found to have fallen, although the money income share of that group rose over the same period. The discrepancy was due to the increasing relative price of food grains, which constitute a large proportion of the budget for the lower deciles. To what extent such a calculation is generally feasible in developing countries is an open question.

comprised only fiscal measures, it would still be difficult to isolate a priori the inflationary implications of each individual instrument. But given that adjustment programs usually involve a host of other policy instruments (credit policy, exchange rate policy, wage and price policies), it would be entirely futile to try to identify a priori the impact of fiscal actions on the real incomes of individuals. Instead, the assessment should be done in two separate steps: first, the calculation of the impact on nominal incomes; second, the calculation of real incomes based on the observed movements of the price level. In that respect, a conceptual inconsistency appears unavoidable insofar as price changes will reflect the whole adjustment package and not just the impact of the fiscal measures.

4. The unit of observation

Different methodologies of income distribution use different units of observation for their measurement. More frequently than not, the choice is dictated by the underlying structure of the methodology. General equilibrium methodologies, for example, typically use the functional criterion, that is, the split between labor and capital income, because of the use of such aggregates in production function analysis on which those models are based. Social Accounting Matrices (and, more generally, input-output methodologies) focus on an institutional split among households, enterprises, and government.

Incidence analysis--which is at the heart of the microeconomic approach to income distribution studies--is fundamentally invariant to the unit of observation chosen for the empirical implementation of the project. At the conceptual level, the issues of incidence analysis are the same, whether one attempts to assess the distributional impact by income group, by region (e.g., urban vs. rural), by profession, or by any other criterion. The basic unit of observation is the individual (or the household), because public finance theory and welfare analysis recognize that only people bear the burden of taxation or enjoy the benefit of budgetary expenditures. This reasoning suggests that the choice of the unit of observation should be based on criteria other than the convenience of the methodological approach, and there is little doubt that the individual is the unit of observation that best captures the essence of distributional considerations. 1/

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for the lower deciles. To what extent such a calculation is generally feasible in developing countries is an open question.

1/ There is a subtle difference between the individual and the household as units of observation, because the latter could possibly mask inter-family inequalities arising from differential consumption patterns and nutritional intakes. These, in turn, would be a function of the size and age composition of households, but such variables are not usually taken into consideration. Although in principle the individual is the preferred choice, in practice all analyses are bound to use household data.

5. The measurement of the informal sector

There is one significant aspect of measurement at the most general level, namely the treatment of the informal sector. The informal sector is known to play a major role in the type of economies under consideration, and to reflect a high degree of the incidence of poverty in the economy. There are different characterizations of the informal sector (see Addison and Demery (1985), and Dethier (1986)) but its importance for the purposes of budgetary incidence usually lies with lost revenue due to tax evasion and the differential use of public services (e.g., health). Fundamentally, the principal question is whether inferences based on official statistics alone adequately and accurately reflect all the economic channels of adjustment policies. If data on household incomes, consumption patterns, and direct taxes were reliable and gathered independently, one could in principle observe an asymmetric, yet conceptually valid, treatment of the informal sector, in the sense that it would escape the tax net, but at the same time take advantage of government expenditure policies. It is not clear, however, to what extent incomes are estimated independently of tax payments, or whether household income and expenditure surveys will be compatible with national income accounts data. In such circumstances, the feasibility of a proper measurement of the informal sector is seriously compromised and the appropriate evaluation of the impact of an adjustment program remains an open question.

A corollary of the measurement question related to the informal sector is whether inequality in general and poverty in particular can be adequately measured by income statistics alone, or whether more specific criteria should be utilized. For the general question of inequality, both theoretical and empirical arguments suggest that expenditure statistics may be more reliable than income statistics as an index of welfare. For poverty in particular, specialized indicators on health and nutrition may be necessary, which obviously go beyond the routinely collected economic statistics. 1/ At the present state of our knowledge, the utilization of criteria other than a measure of real incomes for the purpose of this study appears infeasible.

6. General vs. partial equilibrium analysis

As alluded to earlier, the most important corollary stemming from the fundamental issues discussed above concerns the choice of the analytical methodology for assessing the distributional implications of an adjustment program and, in particular, of its fiscal components. It is obvious that, given the broad scope of the issue and the anticipated data limitations, the choice of the appropriate approach will

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1/ However, even a direct, simplistic link between nutrient intake and health status has been challenged. See Behrman and King (1987).

necessarily involve some tradeoff between theoretical superiority and operational practicality. Nonetheless, there are certain conceptual issues that can be decided a priori.

The macroeconomic approach to income distribution, exemplified by CGE and SAM models, is based on the structure of production, employment, and demand. Proponents of this approach (e.g., Thorbecke (1987); Pyatt (1987)) typically argue that such models are best suited for calculating the changes in relative income shares of functional groups, in particular capital and labor, because general equilibrium methodologies ensure that the transmission of macroeconomic impulses throughout the economy is properly accounted for. The analysis of a CGE, for example, is typically confined to the functional (or extended functional) breakdown of income shares, reflecting the affinity of those models with the neoclassical theory of distribution through the use of a stylistic split between capital and labor income. 1/ Such an approach, unless complemented by a separate methodology, may seriously limit the usefulness of CGE and SAM models for assessing the impact of fiscal measures on poverty, since a comprehensive definition of the poor clearly transcends the functional distribution of income. In addition, in many developing countries it may be difficult to separate the returns to capital from the returns to labor, so that the stylistic split between capital and labor income embodied in CGEs becomes even less defensible. 2/ Huang (1987) very clearly summarizes these concerns as follows:

> "The fundamental relationships employed by these models link output and labor demand to the price and cost factors influencing sectoral profitability. The impact of macro-policies on income distribution is generally analyzed within this framework by considering the short- and medium-term effects of price changes and the medium- to long-term income and employment effects of factor movements. While such analysis may reveal changes in the aggregate distribution of income, it is more difficult to trace what happens to the income levels of specific socioeconomic groups defined by their pre-adjustment source of livelihood."

The time frame of general equilibrium methodologies is an important factor in determining their relevance for distributional considerations. CGE and SAM models examine steady-state conditions at two points in time, but generally remain silent about the real time path implicit in their calculations. Since a general equilibrium approach necessarily allows for behavioral changes, it may prove an unrealistic choice for the short-term horizon required by the focus of this investigation. In the words of Bourguignon (1987), "a macroeconomic

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1/ For a clear understanding of the controversy on the role of a CGE macro specification, especially of the closure rules, in the distributional results, see Adelman and Robinson (forthcoming).

2/ I am indebted to Vito Tanzi for this point.

approach to income distribution phenomena must <u>ideally be complemented</u> <u>by a direct analysis of distributional changes</u> during the adjustment period, as well as outside that period in order to have a basis for comparison" (original emphasis).

Finally, the data requirements for general equilibrium models are usually enormous and would far surpass the capabilities of a typical country that initiates an adjustment program. Moreover, the application of a CGE critically depends on certain parameter values, which, unless assumed a priori, would be very difficult to estimate econometrically from the data base normally available in those countries. One could argue that partial equilibrium methodologies have similar informational requirements, except that they choose to ignore them by implicitly assuming several zero elasticities. This is a valid argument, but in principle the question still remains whether the potential margin of error is greater with zero values and a short-term outlook, or assumed non-zero values and a longer-term horizon.

In any event, the weakest aspect of CGE and SAM models for distribution purposes remains their link with the <u>primary</u> income distribution and the factorial allocation of income. The heterogeneity in the occupations of households within the lowest income groups (e.g., landless farmers, small agricultural holders, urban unskilled workers) makes the factorial distribution less appropriate to represent the reality of developing economies. This limitation is clearly recognized by Thorbecke (1987), one of the leading proponents of CGEs, who clearly states:

> "Whereas a SAM type model might explain the determination of total incomes accruing to different socioeconomic groups, such a model, by itself, does not generate the intra-group income distributions. Additional information has to be grafted upon the SAM to capture the initial within-group distributions and some mechanisms added to the model yielding the new post-adjustment SAM values which would provide the corresponding new distributions."

The methodology for such an endeavor in the case of taxes and expenditures is the theme of the remainder of the paper.

III.   Toward an Analytical Framework of Fiscal Incidence

1.   Effective and net fiscal incidence

In the area of income distribution the concept of incidence is an indispensable prerequisite for any kind of distributional investigation. Their linkage is intimate because incidence is the direct result of a fiscal action, even in the absence of conscious redistributional policies. Whether the budget is used for any of the three Musgravian purposes (stabilization, distribution, resource allocation), taxation reduces real resources available to individuals

and expenditure increases real income. The net effect of the budget could thus be analyzed to show what groups of the population receive a net benefit from the budget, what groups are net contributors to the budget, and how the end result affects the original income distribution of the population.

Two concepts are of critical importance in this area:

First, the concept of effective incidence, and, second, the concept of net fiscal incidence. By effective incidence we mean the ultimate resting place of a tax burden or an expenditure benefit. Effective incidence is thus to be distinguished from statutory incidence, which is based on the letter of the law, and from intended or expected incidence, which is based on the spirit of the law. Statutory incidence will at best provide us with the dollar flows of, say, a tax instrument, such as the corporate profits tax. But corporations, even though they may pay taxes, do not bear the burden of taxation; only people do. It is, therefore, important to estimate the effective incidence of a tax instrument, that is, to calculate the tax burden on people in their capacity as consumers, workers, or capitalists. In the case of the corporate profits tax, for instance, it would be safe to assume that the statutory and the intended incidence coincide, but that the effective incidence is sharply different. But it isn't always the case that the statutory and the intended incidence coincide: for many excise taxes the statutory incidence is on the wholesaler or manufacturer (for reasons of administrative simplicity), but the intended incidence is clearly on the final consumer. In this case, therefore, the intended and effective incidence coincide, but the statutory incidence is different.

By net fiscal incidence we mean the estimation of both tax burdens and expenditure benefits and the derivation of the overall impact from the activities of government. For many decades the expenditure side of the budget was ignored and the concept of incidence was identified exclusively with the allocation of the tax burden. Today, all researchers recognize the need to account for expenditure incidence, as well, but the progress in this area lags well behind that on the tax side. The reason is that expenditures are more varied in type than taxes and are conceptually more difficult to classify. The most intriguing aspect is usually the lack of conceptual consistency with the tax side, in the sense that expenditure benefits are conceptually treated differently from tax burdens. The clarification of this issue and its methodological implications for research are one of the main topics of this paper.

2. Tax burdens and expenditure benefits: their conceptual equivalence

Figure 1 depicts diagrammatically the levels of impact of the government budget in terms of various concepts of incidence, from the less to the more sophisticated, but at the same time from the easier to

the more difficult to estimate. A movement from (1) to (3) entails an improvement in the underlying theoretical considerations and, in principle, the last group of this taxonomy would be the most appropriate concept to employ, since it would involve both direct and indirect effects. As explained earlier, however, computable general equilibrium methodologies are inadequate for dealing with personal income distributions, and the resulting empirical complications render this stage impractical.

At the other extreme, tax collections and expenditure disbursements simply correspond to the concept of statutory incidence, which is analytically meaningless. We thus conclude that the stage termed "operational effective incidence" is the best compromise for a conceptually sound and empirically feasible concept for the estimation of the fiscal impact of adjustment programs on income distribution.
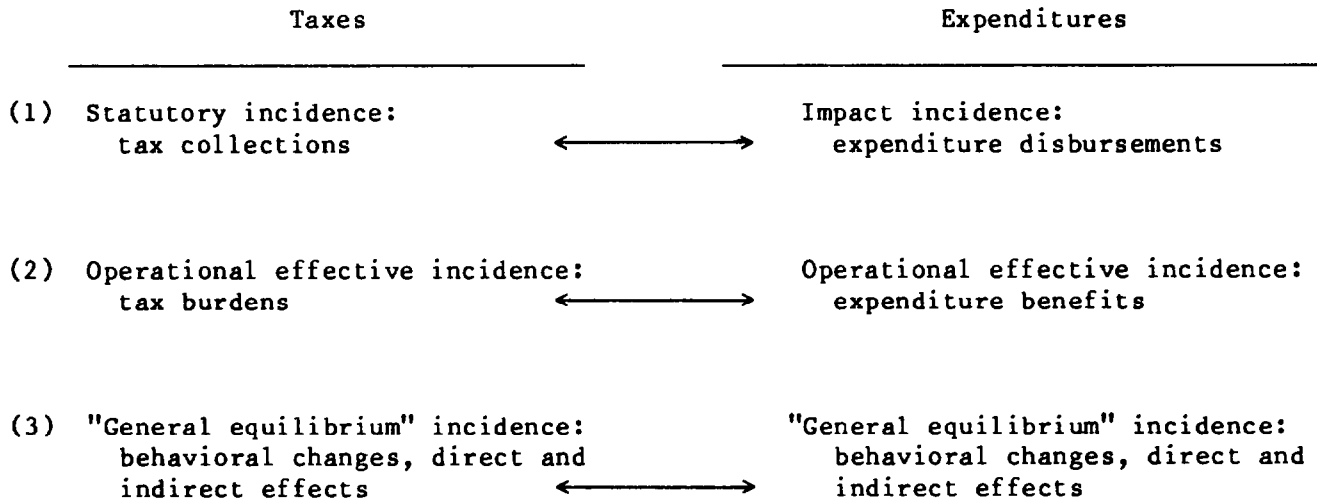
Figure 1 clearly delineates the limits for a congruent treatment of the tax and expenditure sides, and suggests the degree to which any deviation (intentional or not) from a symmetrical procedure may have a bearing on the desirable notion of net fiscal incidence.

The most striking discrepancy can potentially occur in the treatment of the expenditure side, especially as regards the difference between the economic and the functional classification of expenditures. CGE and SAM models, for example, clearly look at the economic classification of expenditures, since it is only through it that one can trace the dollar flows to sectors and industries of the economy. Yet it is apparent (or, at least, should become apparent on simple reflection) that if a conscious decision has been taken to estimate the effective operational incidence, only the functional distribution of expenditures is relevant. There are serious conceptual issues in splitting expenditure categories according to meaningful functional groups, and those will be taken up below; but in principle, only a functional classification of expenditures could reflect effective incidence, that is, the impact of the spending programs according to the services they provide to households.

3. Incidence issues on the tax side

The principal issue on the tax side is the estimation of effective incidence for those taxes that are believed to be shifted from their statutory liability. For most purposes, five broad categories would sufficiently capture the necessary degree of detail: (i) personal income, (ii) corporate profits, (iii) social security, (iv) sales and excises (including customs duties), and (v) property taxes. Typical adjustment programs may streamline the personal and the corporate profits tax, but the bulk of the necessary revenues usually comes from excises, notably tobacco, beer, and petroleum products, as well as import and export duties. Changes in property taxes or social security contributions are not prominent in adjustment programs (International Monetary Fund (1986)).

Figure 1. Stages of Impact of Government Budget:
Their Conceptual Equivalence

Taxes		Expenditures

(1) Statutory incidence: Impact incidence:
tax collections $\longleftrightarrow$ expenditure disbursements

(2) Operational effective incidence: Operational effective incidence:
tax burdens $\longleftrightarrow$ expenditure benefits

(3) "General equilibrium" incidence: "General equilibrium" incidence:
behavioral changes, direct and   behavioral changes, direct and
indirect effects $\longleftrightarrow$ indirect effects

Conceptually, the most controversial incidence issue relates to the corporate profits tax, but its quantitative significance in adjustment programs is rather limited. Personal income taxes are usually assumed to remain unshifted, an assumption generally valid for wage earners and salaried personnel, but not necessarily true for professionals. Social security contributions can in principle be shifted either backward or forward, but in the light of some early research the empirical significance of such a distinction is limited (Brittain (1972)).

Methodologically, an interesting case is presented by the excises, especially those levied on intermediate goods, such as petroleum products. Although there is usually little doubt that the intended and the effective incidence coincide (i.e., the burden of the tax falls on final consumers), there is reason to believe that the regressivity of consumption taxes may have been overestimated. For even with the assumption of full forward shifting, the burden of taxes imposed on intermediate goods will necessarily fall on a wider group of consumers than those in direct final consumption of the excisable product. Accounting for the differential impact of taxes levied on intermediate commodities can be achieved by using interindustry information on the economy through an input-output analysis. Earlier results of such an investigation for the U.S. economy have indicated that, although the incidence of excise taxes is on the whole regressive, their distributional impact may not be as inequitable as the traditional methodology implies (Catsambas (1982)). A recent article on the impact of indirect taxation in developing countries (Bird (1987)) also concludes that the precise incidence of excise taxes may vary sharply from country to country and that no generalizations are possible in the absence of detailed studies.

In summary, the tax side does not present insurmountable conceptual or methodological difficulties, although the empirical implementation might be seriously hampered by a possible unavailability of the necessary statistical information.

4. Incidence issues on the expenditure side

Unlike the estimation of tax burdens, which derives from an extensive body of economic theory, but for which the results are uncertain because of some controversial issues, no comparable theoretical framework supports the analysis of expenditure incidence. Many studies raise important questions on the expenditure side, and even attempt to provide some answers, but only a few have consciously utilized a consistent analytical framework. The notable examples are Meerman (1979) on Malaysia and Selowsky (1979) on Colombia. The complications arising on the expenditure side of the government budget are partly due to the extensive number of programs and the objectives for which those programs are designed. Conceptual problems are also generated by the fact that most expenditure items fall somewhere between the "pure private good" and the "pure public good" of economic theory.

But by far the most important limitation in the benefit allocation of government expenditures is the lack of an economic theory of benefit incidence that parallels the theory of tax incidence. The problem can be summarized as follows:

The various influences that are generated by budget expenditures can be divided into three successive stages of impact. First, the outlays generate incomes to the recipients of the payments. Second, spending programs provide services to beneficiary groups that might otherwise have been unable to obtain them. And third, the expenditure activity of the government sets in motion economic forces that, over a longer period, may influence the behavior of rational economic actors, thus altering the economic environment of decision-making units.

These three stages correspond to the delineation of Figure 1, moving from impact to general equilibrium analysis. Having ruled out a general equilibrium approach for the reasons explained earlier, an analysis of expenditures symmetrical with that of taxes would require the use of a concept of operational expenditure incidence (stage 2), under which the true beneficiaries of the government programs would be identified. Unfortunately, in some important cases (notably, pure public goods, but also some merit goods) it is nearly impossible to identify even the initial beneficiary. In the case of private goods provided through the budget, this may reflect our limited knowledge of the technical characteristics of the goods and services and of people's preferences. In the case of public goods this additionally reflects the complete absence of the market mechanism, which, in turn is the raison d'être for the public sector itself. In any case, unlike the tax side where the statutory taxpayer is always known, on the expenditure side even the first-order beneficiary of a program may not be promptly identifiable.

This has led many researchers to limit themselves to the tracing of the expenditure disbursements as income flows to the various economic sectors where payments are made (stage (1) of Figure 1). This approach, in the opinion of this author, would not only be inconsistent with the treatment of the tax side as explained earlier, but it would additionally make little sense for evaluating the impact of an adjustment program on the poor.

There are two fundamental reasons behind this assertion: First, changes in public spending by economic classification, such as public sector employment and wage freezes or reductions, basically affect middle-income groups, for example, civil servants, and not the poor. Second, the poor are the consumers of the services of government programs, and it is the curtailment of such services under an adjustment effort that would affect their real incomes. Classical examples are health and education expenses: if we were to allocate the benefits from these programs to, say, doctors or teachers, our reasoning would be equivalent to ascertaining that the beneficiaries from national defense expenditures are only the soldiers and the officers of the Armed

Forces! Yet, all the models that use the economic classification of
expenditures implicitly make this odd assumption. If we wish to
concentrate on poverty, the inadequacy of this approach becomes even
more obvious: changes in current or capital expenditures for health and
education programs do not affect the poor in terms of money flows,
because it is obviously the middle class that receives the government
paychecks. But the poor are severely affected by the curtailment of
services that the retrenchment of those programs implies. It is
therefore the measurement of those services that would reflect the true
beneficiaries of a government program, and would indicate how they are
affected by an adjustment effort. 1/

5. Measurement of net fiscal incidence

This reasoning suggests the following four-stage measurement
process: (i) the grouping of the tax and expenditure items by sets that
can be treated homogeneously in terms of conceptual incidence; (ii) the
identification of effective incidence either by estimation or by
hypothesis; (iii) the use of an appropriate statistical series for the
allocation of the tax burden or the expenditure benefit according to
income class; and (iv) a comparison of the post-adjustment distribution
with the pre-adjustment one, and the drawing of conclusions about the
changes in relative income positions.

The choice of income concept in incidence calculations is an
important consideration, because it affects the inferences about the
redistributive impact of fiscal policy. The basic issue is which taxes
and transfer payments, if at all, should be included in the income
concept. A measure of income that includes taxes and transfers implies
a definition that changes as shifting assumptions change. Therefore, in
comparing a post-adjustment distribution with the pre-adjustment one, it
may be difficult to separate the effects of actual fiscal measures (tax
and expenditure changes) from the differential definition of the income
base. For that reason, many authors prefer to use an income measure,
which, depending on their particular framework, stays invariant to
changes in the incidence assumptions. 2/

A second important consideration is the use of the counterfactual,
that is, the hypothetical situation with which the post-adjustment
situation should be compared. Huang (1987) aptly distinguishes three
cases: first, the before-and-after method, which involves a simple
comparison of income distribution before and after an adjustment
program; second, the actual-versus-no-action approach, which would
compare what actually happened with what would have happened without

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1/ One would still face the problem that what is really measured is
the cost of the provision of those services, not the true benefits
evaluated by the recipients themselves.

2/ For a thorough exposition of these and related issues, see Whalley
(1984).

adjustment; and third, the actual-versus-optimal approach, which would compare again the actual post-adjustment situation with a hypothetical result under an optimal set of policies.

In my opinion, the concern about the counterfactual has been exaggerated. Not only does the name itself imply a futile endeavor, but also any attempt to use simulations of some hypothetical developments could introduce a margin of error of unknown magnitude--possibly higher than the simple comparison of the first method. It is, of course, true that under an extended time perspective the counterfactual argument becomes more relevant for two reasons: first, the recognition that an adjustment effort is itself the consequence of an unsustainable disequilibrium over the medium term. Second, the expectation that adjustment measures will also have allocative effects and that, consequently, supply considerations and the sources side of income will need to be taken into account. In these circumstances, the global effects of an adjustment effort must be compared with the hypothetical situation that would have prevailed in the absence of such an effort. But, within the short-term framework of this analysis, and the emphasis on the uses side of income, the before-and-after method is an acceptable compromise between conceptual optimality and operational feasibility.

a. The tax side

On the tax side, the grouping of taxes by the five major categories mentioned earlier should be sufficient for all practical purposes. The burden of direct taxes is usually available through the calculation of disposable income in the national income accounts, but could also be estimated in a rather straightforward manner. The burden of all indirect taxes can be allocated either directly by final expenditure or through the use of an input-output table. The burden of the corporate profits tax will have to be allocated according to an estimated or assumed incidence assumption on final consumers, wage earners, or shareholders. In the absence of econometric evidence, alternative allocations may be unavoidable for sensitivity analysis.

The empirical estimation requires data on the burden of direct taxes and detailed consumption data for all the indirect taxes and the alternative shifting hypotheses of the corporate profits tax and the social security tax. The use of proxies, such as employment data instead of consumption data, may turn out to be necessary in certain cases. It is also possible, indeed likely, that the use of a general consumption series, such as sales data, may be the fallback position for many indirect taxes for which detailed expenditure data by income class may be unavailable.

b. The expenditure side

The conceptual difficulties with the incidence of expenditures discussed earlier suggest that the distributional impact of an adjustment program be evaluated for two broad categories: first, for

cuts in expenditures that reduce directly the real incomes of
individuals; second, for cuts in expenditures that affect the real
consumption of individuals through the reduction of goods and services
available to them.

The first category would include all transfer payments, interest
payments, and subsidies, and the second category would include all
private and public goods. By private goods provided through the
government budget we mean goods and services for which beneficiary
groups can in principle be identified, as for instance would be the case
of programs for the satisfaction of "merit" wants (health, education,
etc.). By "public" goods we mean programs aimed at satisfying "social"
wants, for which no specific beneficiary can be identified. The market
cannot satisfy such wants, because people cannot be excluded from the
benefits and are consequently unwilling to engage in voluntary payments.

Transfer payments are conceptually equivalent to direct taxes and
subsidies are conceptually equivalent to indirect taxes; therefore the
benefit allocation should in principle be no more complicated than the
burden allocation of the corresponding taxes. In this case, transfers
and subsidies will have to be derived from the economic classification
of government expenditures for all programs affected by the cutbacks.

Subsidies, in particular food subsidies, deserve special attention
because of their predominant position in most adjustment programs (see
International Monetary Fund (1986)). The subject has been extensively
researched, but a few methodological remarks are in order: first, it is
important to define a correspondence between the socioeconomic groups
identified in food subsidy research and the general classification of
income classes to be used in other parts of the project. Food subsidy
studies tend to use highly sophisticated techniques, but the
disaggregation of income groups is not always compatible with the
traditional income classification (see, for example, Yitzhaki (1987)).
Second, it is also important to recognize that while food subsidies may
have a positive effect on the uses side for consumers, they could also
have a negative effect on the sources side for small agricultural
producers (Schneider (1985)). The net impact of those two effects would
have to be appropriately measured for an overall assessment of the
distributional implications of food subsidy programs. Namor (1987)
provides a thorough review of the various facets of the food subsidy
question.

The second broad category would include all private and public
goods and would follow the functional, as opposed to the economic,
classification of expenditures. The breakdown of spending programs
between private and public goods is not always easy. This is
particularly true for a number of capital expenditures, although
operational experience teaches that one should be very cautious in
making a distinction between current and capital expenditures, not only
for conceptual but also for practical reasons. Highways is a good

example of the dilemma: services from this program accrue to identi-
fiable (at least in principle) individuals. But, with reasonable
accuracy, it is also arguable that these outlays should be considered as
social overhead expenditures, and that, therefore, they should be
classified as public goods.

To retain internal consistency in the methodology of an incidence
study, the only operationally feasible criterion is to base the split
between private and public goods on the notion of allocable public
expenditures (Musgrave, Case, and Leonard (1974)). According to this
yardstick, which admittedly contains a degree of circular reasoning but
hopefully ensures a consistent framework, private goods are those
expenditures for which a subset of society can be identified as a direct
beneficiary, and for which a direct imputation is possible. By
elimination, all other expenditures are public goods. According to this
classification, private goods would comprise capital expenditure, net
lending, wages and salaries, and other purchases of goods and services for
individual spending programs such as education, health, and housing. On
the other hand, "public" goods would be a distinct category in that it
would include total amounts of all economic expenditures for the
programs involved.

Figure 2 presents a schematic outline of the expenditure
methodology suggested in this paper. Expenditures for a typical country
with an adjustment program are presented in a matrix form, where rows
depict the functional classification and columns the economic classifi-
cation. According to the suggested methodology, the grouping of
expenditures would take the following form: Subsidies, transfer payments,
and interest payments would be directly attributed to individuals in
their capacity as consumers or producers of the subsidized commodities,
or as direct recipients of money incomes. Wages and salaries, other
purchases of goods and services, capital expenditure, and net lending
would be identified with the appropriate functional programs, and the
allocation of benefits would follow the identification of the relevant
beneficiary group. If in a particular category, for example, social
security, the predominant type of expenditure is a transfer payment,
then other types of expenditure would be assumed to be overhead
expenditures and would be prorated to the direct beneficiaries of the
transfer programs. Analogous reasoning would suggest that wages,
salaries, and other purchases in, say, agriculture would follow the
distribution of subsidy payments to the individual beneficiaries.
Needless to point out, there may be several zero entries in the matrix
of Figure 2. Finally, public goods would be treated as a separate
category comprising all types of government spending.

For private goods, the degree of sophistication in the techniques
to be utilized for identifying the beneficiaries of individual expenditure
programs will largely depend on the quality of the underlying statistical
information. For example, in a methodologically exemplary study on the
distribution of expenditure benefits in Malaysia, Meerman (1979) used a
very detailed sample survey for exploring household use of public

Figure 2. Conceptual Classification of Government Expenditures for Incidence Purposes

Economic Classification / Functional Classification	Capital Expenditure		Net Lending	Current Expenditure				
	Fixed Capital Formation	Capital Transfers		Wages and Salaries	Other Purchases of Goods and Services	Subsidy Payments	Transfer Payments	Interest Payments

Public goods

General Public Services
Defense
Public Order and Safety
Natural Resources

Private goods

Education

Health

Agriculture

Housing and Community Services

Economic Services

Social Security

Interest Payments

output. Moreover, he used econometric techniques to analyze household consumption of utilities, that is, to test the presumption that access to a service (electricity, water, and sewage disposal) and effective demand are identical. In most developing countries such methodologies would be impractical. As a minimum, however, the allocation of program benefits would require statistical series reflecting the consumption of services offered by those programs by income groups, such as enrollment in different levels of education, health expenditures, and hospitalization.

An accurate evaluation of the benefit incidence of social programs cannot be overestimated. Behrman (1986) cites Jiménez (1984) as concluding (for a number of developing countries) that "the present distribution of subsidies [in-hospital care and university education] tends to be highly skewed toward higher-income groups, who obtain greater access to more costly social services ... even if they are uniformily free for all." The surprising corollary of such a conclusion would be that a cutback in health and education expenditures would have desirable distributional consequences! 1/

It is worthwhile pointing out at this juncture that the lack of unifying theoretical propositions on expenditure incidence makes it impossible to allow for benefit "snatching" or "relinquishing" by the original beneficiary, and implies only a direct attribution to households of the quantity of services provided by the budget. Thus, although conceptually we are still operating at stage (2) of Figure 1, the effective incidence of expenditures coincides with the nominal incidence. 2/

There remains the problem of public goods. There is a vast literature on the theory of public goods, which goes beyond the scope of this paper. The distributional implications of public goods have been dealt with in a seminal paper by Aaron and McGuire (1970), and the

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1/ Once again, one must be careful to distinguish between income distribution and poverty. The desirable distributional consequences refer only to the relative positions of individuals. However, in an absolute sense a cutback in social expenditures may have serious consequences for the poor, who may be unable to cope with the reduction in the provision of social services, especially in the area of health.

2/ Benefit "snatching" or "relinquishing" are the conceptual counterparts to the "shifting" hypotheses on the tax side. A producer whose inputs are subsidized, and who accordingly reduces his output price, may be said to relinquish his benefit in favor of final consumers. The children of social security recipients may be arguably said to snatch this benefit from their parents, in the sense that they are presumably relieved of additional financial responsibilities. Such conceptual--and to a large extent philosophical--issues are ignored, because on the expenditure side there are few market transactions that would support an empirical testing of such hypotheses.

theory has been extended and modified by Maital (1973), Brennan (1976), and Catsambas (1982). Basically, we remain agnostic about the true preferences of individuals, and any attempt at allocating public goods benefits is bound to depend on arbitrary assumptions about the structure of preferences and the value of some critical parameters. One pragmatic solution would be to assume that the benefits are proportional to the post-fisc income distribution (excepting public goods), and, therefore, to ignore their redistributional impact. Otherwise, the use of alternative assumptions--per capita allocation, a function of income, a function of wealth--appears inevitable.

Regardless of how public goods benefits are allocated to households, the focus should remain on the assessment of the benefits from the programs, not on the dollar flows of the programs. Nonetheless, the distributional implications of public goods within the context of an adjustment program will probably remain the weakest aspect of the exercise.

6. Directions for future research and data requirements

Both conceptual and empirical considerations point to the fact that research efforts in the future should be concentrated on the expenditure side of the budget. The tax side, apart from the existence of a strong theoretical background for incidence analysis, is less important for two reasons. First, empirical evidence suggests that the distributional impact of taxes is basically neutral. This has been shown to be true for countries ranging from the United States (Pechman and Okner (1974)), to Taiwan, Malaysia, and Nigeria (Stewart (1983)). For developed countries the basic explanation is that the nominal progressivity of the individual income tax (the principal distributional instrument in the fiscal area) has been eroded by a complex administrative structure based on several exemptions and deductions. For developing countries, the major reason is that direct taxes, including the income tax, usually represent only a small share of tax revenues.

Second, it would stand to reason to assume that the poor, whether in the formal or the informal sector, are not affected by tax increases, except in extreme cases. It is unlikely that they would be affected by direct taxes, and indirect taxes would have some effect only to the extent that the consumption basket of the poor includes an important portion of marketed goods that are specifically exempt from taxation--an unlikely eventuality. In any event, difficulties on the tax side are usually empirical, seldom methodological.

Not so with the expenditure side. Here the major stumbling block is the existence and operational usefulness of preference indicators by consumers for public programs, and the intricacy of expressing benefits in income-equivalent terms. Several attempts have been made over the years to measure the benefit valuation of expenditure programs by individuals and to assess distributional changes. The areas of research have ranged from in-kind income (Peskin (1976)), to public goods (Aaron

and McGuire (1970), Maital (1973)), to food subsidies (Yitzhaki (1987)). The basic weakness of all these studies is the use of a *critical parameter (typically an income elasticity)*, which has either been assumed, or has been estimated on an unrealistic specification of a utility function. Additionally, according to the Yitzhaki paper, each extended Gini coefficient offers a different weighting scheme for constructing the income elasticities. 1/ Yet, in the case of food subsidies, the sensitivity of the income elasticity of demand of the subsidized goods by income classes cannot be overemphasized (Namor (1987)). Likewise, the marginal utility of income among different income classes is a prerequisite for the valuation of public goods, but this parameter is virtually inestimable, unless a very restrictive form of the utility function is assumed (Catsambas (1982)). 2/ The results are, therefore, very sensitive to unobservable and probably unmeasurable parameters.

Nonetheless, it seems that this is the only avenue for further research. Given that distributional objectives are fundamentally influenced by only the expenditure side of the budget, it is important to direct our efforts towards a better measurement and evaluation of those programs. The emphasis should be on the measurement of expenditure incidence, as opposed to the use of untestable hypotheses.

In terms of data requirements, detailed and reliable household income and expenditure surveys are the most important informational prerequisite for any progress along the lines of this endeavor. Such surveys are usually reported in terms of income groups, but obviously any information on other possible criteria (e.g., urban-rural), would be useful and welcome. The problem is that household surveys typically available in developing countries are woefully inadequate for the requirements of such a project. It appears inevitable that, as in the case of the Meerman and Selowsky studies, only well designed ad hoc surveys could provide a reliable data base. Finally, any effort toward the estimation of expenditure functions could complement, or substitute for, gaps in the household income surveys.

IV. Conclusion

This paper has discussed methodological issues arising in the estimation of the impact of government tax and expenditure policies within the framework of adjustment programs on income distribution, especially on the incomes of the poor. It has raised scepticism about the operational usefulness of macroeconomic methodologies, not only because of their strong assumptions, but more importantly because their

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1/ Yitzhaki (1987), p. 11.
2/ Specifically, the utility function would have to be additively separable in public and private goods.

focus is on the factorial or institutional distribution of income, which does not serve well the requirements of a distributional investigation.

Instead, this study has proposed the use of the traditional partial equilibrium methodology of tax and expenditure incidence by income group, as the best compromise between conceptually desirable and empirically feasible approaches. It has also pointed out that more emphasis should be placed on the expenditure than on the tax side and that, consequently, research efforts should be directed toward a better measurement of expenditure benefits. In suggesting this methodology, this paper has questioned the measurement of expenditure programs in terms of their dollar flows and has argued that only benefits from the services of such programs are relevant for assessing the impact of adjustment efforts on the incomes of the poor.

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