MACROECONOMIC POLICIES AND RURAL POVERTY:
ISSUES AND RESEARCH STRATEGIES

by
Jere R. Behrman
September, 1990
RP-145
MACROECONOMIC POLICIES AND RURAL POVERTY: 
ISSUES AND RESEARCH STRATEGIES

by

Jere R. Behrman

September, 1990

© 1990-(Jere R. Behrman)

Note: This paper is intended for private circulation and should not be quoted or referred to in publication without the permission of the author.
Macroeconomic Policies and Rural Poverty: 
Issues and Research Strategies

by

Jere R. Behrman*

September 1990

*William R. Kenan, Jr. Professor of Economics, University of Pennsylvania, McNeil 160, 3718 Locust Walk, Philadelphia, PA 19104-6297, U.S.A. and Arnold Bernhard Visiting Professor of Economics, Williams College, Williamstown, MA 01267, U.S.A. for the 1990-1 academic year. This paper was written for the Asian Development Bank project on "Priority Issues and Policy Measures to Alleviate Rural Poverty." This revision has benefitted from comments of other participants in the ADB project, particularly T.N. Srinivasan, on an earlier draft. The author alone, and not the Asian Development Bank, is responsible for all interpretations given here.
# Table of Contents

Executive Summary

Section 1. Introduction

Section 2. General Framework for the Analysis of the Impact of Macroeconomic Policies on Rural Poverty
   Section 2.1 Major Components of Macro Policies
      Section 2.1.1 Currency Devaluation
      Section 2.1.2 Contractionary Fiscal and Monetary Macro Policies
      Section 2.1.3 Direct Wage and/or Price Policies
      Section 2.1.4 Policies beyond Devaluation to Limit Foreign Exchange Uses and to Encourage Foreign Exchange Generation
      Section 2.1.5 The Composition of Macro Expenditures and Activities
   Section 2.2 Major Elements of the Meso Setting that Transmit the Impact of Macro Policies to the Command over Resources of Rural Households
      Section 2.2.1 Markets
      Section 2.2.2 Infrastructure
   Section 2.3 Assessing Empirical Links between Macro Policy and the Meso Setting for the Determination of Rural Poverty

Section 3. Meso-Micro Analysis of the Impact of Macro Policies on Rural Poverty
   Section 3.1 Conceptualization of Rural Households -- the Farm-Household Model
   Section 3.2 Asset Determination and Relation to Meso Variables
   Section 3.3 Price Determination and the Relation to Macro Policies
   Section 3.4 Transfers and Macro Policies
   Section 3.5 Other Outcomes Related to Rural Poverty That May Reflect Macro Policies

Section 4. Selected Analyses of the Impact of Macro Stabilization and Structural Adjustment Policies on the Rural Poor
   Section 4.1 Agricultural Incentives in Developing Countries -- The Effects of Sectoral and Economywide Policies
   Section 4.2 The Policy Response of Agriculture
   Section 4.3 World Bank-Supported Adjustment Programs and Living Conditions
   Section 4.4 Some Country Case Studies
      Section 4.4.1 Indonesian Adjustment Experience
Executive Summary

This paper first discusses analytical models for analyzing the impact of macro policies on the rural poor in the DMCs (Developing Member Countries of the ADB), then reviews several cross-country and country case studies that are related to these concerns, and finally concludes with some general questions and reflections.

1. Analytical Frameworks for Considering the Impact of Macro Policies on the Rural Poor in the DMCs: It is useful to distinguish conceptually between two broad types of macro policies: first, short-run macro stabilization policies that intend to return the economy to an equilibrium path from which it has moved (perhaps due to unanticipated shock) and second, longer-run adjustment policies that intend to change the equilibrium path of the economy. In practice, these may be intertwined. Nevertheless, the distinction is useful analytically because, for example, the difference in intent may affect importantly the perceptions of the duration of any policy changes -- and thus the incentives for private entities to make any longer-run behavioral changes in response to the policies.

One can speculate about many possible effects of macro stabilization and adjustment policies on rural poverty. Within simple models, some of these are predicted with confidence about their direction, if not their magnitudes. At a fairly high level of abstraction, real incomes of poor rural households can be altered by macro economic policies through the conduits of meso market price and infrastructure variables to change the assets broadly-defined that the household has, to change the prices broadly-defined that the household faces for the goods and services that it produces and for the goods and services that it uses, and to change the net governmental and private transfers that the household receives. In addition, there may be induced household formation or dissolution and migration, both of which may have important implications for rural poverty.

But within more complicated models, or with a combination of macro policy changes, such predictions are much less confident, not only with regard to the magnitudes, but also possibly the signs. Moreover the DMCs vary considerably in a number of dimensions that may affect substantially the effectiveness of different macro policies: the extent of integration into market economies, the development of markets (particularly financial and risk sharing/shifting markets), the importance of nonmarket institutions for such purposes as resource transfers and insurance, the extent to which various functions (e.g., banking, insurance) are state monopolies, the extent of regulation of economic interactions with international markets and of domestic decisions, the extent of infrastructure development. These differences mean that the initial conditions into which macro policy changes are introduced may be critical in analyzing such policies, so that generalizations about the impact of macro policies on the rural poor in DMCs are fraught with risk. Instead careful analysis of individual situations is critical. However it should be recognized that most of these characteristics that differ among DMCs themselves reflect in part policies, and thus may be effected by policy decisions -- for instance,
to liberalize the economy or to improve the public infrastructure.

The issues of the sizes and the directions of the impact of macro policy changes on rural poverty, thus, are basically empirical issues, both because of the general complications of analyzing macro policies that may percolate throughout the whole economy with different lags and because of the important differences among the DMCs. Given the lack of adequate structural models of the relevant DMCs that would permit the analysis of the issues of concern within the scope of the project, this paper suggests that various reduced-form relations be estimated in order to evaluate the impact of macro policies, perhaps as mediated by price and infrastructure meso variables, on the assets, prices, transfers, dissolution/formation and migration of poor rural households. Such an approach has its limitations, and care should be taken to explore the robustness of the results. Subject to such qualifications, such estimates will suggest at least the order of magnitude of the effects of macro policies on the rural poor in particular DMCs, within a framework that allows for the possibility that such households can cope considerably in response to the changes that they face. One important issue that must be kept in mind in this analysis is that the response basically has a time subscript, depending on the duration and the success of the macro policies being considered. It is important to consider the time paths of various responses since there are situations in which the immediate impact of a particular macro policy on an important meso variable for rural poverty may be in one direction, but the longer-run effect may be in the opposite direction.

Once greater information is available about the time paths of responses in rural poverty and in intervening meso variables to various macro policy changes, the next general issues are: (1) can alternative macro policies that are less detrimental to rural poor be used to achieve the same goals and (2) how can poor rural households be made more able to cope with any negative changes. It is not clear that the project studies can be more than speculative about the former question because to evaluate it requires an assessment of the effects of macro policies on a range of outcomes, not just rural poverty. With regard to the latter question, a number of possibilities come to mind on a priori grounds: increasing rural households' adjustment capacities through more information and more education, improving capital and insurance markets, instituting targeted programs such as ones related to the availability of basic staples and work relief efforts, increasing governmental transfers. After the seven DMC studies learn more about the magnitudes and directions of relations between macro policy changes and rural poverty, it will be useful to turn to the issue of which, if any, of policy-related coping mechanisms should be developed or extended in light of the nature of the macro policy-rural poverty links.

2. Cross-Country and Country Case Studies of Specific Aspects of the Impact of Macro Polices on the Rural Poor in Developing Countries: It is useful to consider existing studies both because they provide some illustrations of some possible approaches for the specific DMC country studies and because they raise some questions for consideration by the country studies that are part of this project.

Cross-country examination of the incentives for agricultural
products created by past policy regimes and the probable changes in them that would result from structural adjustment suggests that adjustment is likely to result in substantially improved prices for agricultural exportables due to large indirect effects through general policies in addition to smaller direct sectoral specific effects. The impact on the prices of agricultural importables is likely to be smaller, and perhaps close to neutral, with the indirect effects offset in substantial part by the direct effects due to lowered price and quantitative import barriers. The net effect probably would be to increase relative agricultural prices, but with intra-agricultural prices moving to favor exportables and the producers of such exportables. There also well might be some accompanying increases in price fluctuations due to the integration into world markets.

Cross-country consideration of agricultural supply responses to such policy changes suggests that the short-run response in aggregate agricultural production is likely to be fairly small, concentrated in exportables, and less important than the price changes in affecting agricultural income. The longer-run effects are likely to depend substantially on infrastructural investments, but -- if those are allocated rationally with regard to relative rates of return -- they are not likely to be concentrated in the more marginal rural areas. Therefore the poor in such areas may benefit substantially from such investments only if they migrate.

Cross-country investigation of the impact of international organization-supported adjustment programs on labor markets and on the social sectors suggest that there is little evidence of much impact, though there is some evidence of positive effects on rural income growth and negative effects on some dimensions of longer-run human capital investments. Such results are much less alarmist about the deleterious effects of adjustment programs on the rural poor than have been the claims of some. In fact, they are consistent with some short-run improvements in the position of the rural poor, though to what extent is not clear because it is not clear from this study to what extent the rural poor share in the growth in rural income associated with the adjustment program. However, these results raise the question about whether the long-run benefits for the rural poor from past adjustment programs are as large as might be desirable.

The three country case studies reflect more in-depth examination of particular experiences, the first of which for a DMC and the other two for other developing countries. (1) The analysis of poverty reduction with adjustment in Indonesia between 1984 and 1987 suggests the possibility of substantial reduction in poverty at the same time that a major adjustment program is undertaken. The headcount measure of the household share living in poverty fell by a third (from 33% to 22%) during this period, primarily reflecting substantial drops in the proportions living in poverty in rural agricultural labor and self-employed households. These falls, in turn, reflected largely average real consumption increases in these sectors, though there also was some impact of redistribution favoring the poorer households. These reductions in rural poverty coincident with a major adjustment program reflect (i) favorable initial conditions due to almost two decades of growth and poverty reduction so that momentum was relatively easy to
maintain and some earlier investments were increasing their payoffs,
(ii) increased prices for agricultural exports and other cash crops and
increased rural wages, and (iii) maintenance and expansion of governmen-
tal policies directed towards the consumption of the rural poor. This
experience suggests strongly that at least in some contexts substantial
initial reductions in rural poverty can accompany major macro structural
adjustments, though there is some question even in this case about
whether there was not too much off a tradeoff between increasing short
run consumption versus maintaining investment that will affect
consumption in the medium run. How transferable this experience is
depends in part on how important the favorable initial conditions are.
(2) The comparative analysis of the Jamaican experience of the mid 1980s
suggests very little evidence of short-run negative effects on the
income or the human resources of the rural poor, in sharp contrast to
the claims of UNICEF about the same experience. (3) The analysis of
the Cote d'Ivoire adjustment experience of the early 1980s contrasts
sharply with the Indonesian experience in that rural and total poverty
is estimated to have increased more rapidly than did mean real per
capita income fall. This suggests a combination of (negative) growth
and more unequal distribution. This combination occurred despite a
positive association between various policy indicators and the relative
poverty in various parts of the economy identified by region,
urbanization, and economic activity. This is a disconcerting result
indeed since it means that at least the third reason noted above for the
Indonesian successful combination of poverty reduction with adjustment
was satisfied, though perhaps not to the same degree, in the Cote
d'Ivoire. The first reason also was at least partly satisfied since the
Cote d'Ivoire also had had a sustained period of growth, though it is
not clear that there had been the same ongoing poverty reduction as in
Indonesia. It seems, however, that the second reason was not so well
satisfied in that apparently export crop prices continued to be
suppressed somewhat in order to provide governmental revenues.

3. Concluding Reflections and General Questions: Most of the poor
in DMCs, as in other developing countries, are in rural areas.
Therefore the question of what is the impact of macro stabilization and
adjustment policies on the rural poor is an important one. However, it
also is a difficult one to which to give general answers, in part
because of the complexities inherent in evaluating macro policies since
they may have many indirect as well as direct effects that change over
time and in part because of the heterogeneity among the DMCs. Therefore
careful country-specific analysis is critical for specific evaluation of
macro policies.

There are some general questions, however, that may help guide such
analysis. First, what are the characteristics of the particular DMC
with regard to such phenomena as market development, state monopolies
and governmental regulation and how do these characteristics affect the
likely impact of macro policies a priori? Second, should a major aim of
policy be to change some of these conditions? Even if there are market
failures, for example, would it be desirable to attempt to coordinate
governmental intervention closely with the signals emanating from world
markets? Third, exactly who are the rural poor and what are their
sources of command over resources? The impact of devaluation on the income of the rural poor, for example, is likely to be much more positive if the rural poor are involved substantially in the production of exportables than if they are concentrated in production of nontraded goods and services. Likewise, changes in social services related to basic health and education are likely to affect the rural poor much more than changes in higher levels of education and in specialized curative health care. Fourth, are there sequencing issues in regard to undertaking macro polices so that they will be most effective? The World Bank, for example, emphasizes that macro reform should be undertaken first where the distortions are greatest, which is likely to be with regard to stabilization in developing countries in which the macro imbalances are acute. It is not clear that this is the best rule. It would seem better to state that policy changes should be undertaken where the rate of return (in terms of the country's objectives) to the resources devoted to the policy change are highest, which may not be where the distortions are greatest. It also is not clear that in most of the DMCs the greatest distortions are the macro imbalances on which the World Bank focuses. But the question of policy priorities still needs to be addressed. Fifth, how critical are infrastructure improvements and maintenance in improving the command over resources of the rural poor? Sixth, what is the right balance between buffering the rural poor from short-run macro constrictions that often are part of stabilization programs and the initial stage of adjustment programs and investments that affect the longer-run command over resources of the rural poor? Seventh, what are the activities in which the government, given the objectives of a particular DMC, has a comparative advantage? How can government activities be made more response to changing circumstance and less captive to rent-seekers? Eighth, what is necessary to make a macro adjustment program sustainable? Credibility is important, but how is credibility established? One of the arguments for sequencing so that the largest distortions are attacked first is that lessening such distortions may be a very visible sign of movement and may increase the probability that longer-run changes in incentives are perceived by private entities. Some have suggested that the government should cultivate the "winners" from such an effort (e.g., exporters if there is real devaluation and foreign sector liberalization) so that in the political arena they will provide some counterweight to the "losers" (e.g., those who no longer are obtaining rents from regulations). The pace of macro policy changes -- and, perhaps more importantly, resulting improvements -- also seem critical in establishing the credibility of an adjustment program. Moreover the credibility of the government's efforts also might be strengthened by success in lessening some perceived imbalances in the governmental sector, such as fiscal deficits. Unfortunately, however, these are just speculations, the truth of which is quite difficult to know how to assess. Nevertheless, the extent to which the government succeeds in establishing credibility may be critical to the success of such programs.
Section 1. Introduction

Despite considerable growth in agricultural production and employment during the past three decades, rural poverty remains a major concern for most developing member countries (DMCs) of the Asian Development Bank (ADB). In most of these countries, the vast majority of the poor live in rural areas even though there may be some relatively visible urban poor as well. In the lower- and middle-income DMCs of South and Southeast Asia, for example, are the majority of the world's population who live in absolute poverty as defined by having earnings below those necessary to maintain adequate nutrition,\(^1\) and 70-80 per cent of these individuals live in rural areas. Most of the rural poor are marginal farmers and landless laborers, the absolute numbers of whom have increased in recent decades in most of the DMCs even though in some cases the numbers relative to the total population probably have declined.\(^2\) Some conjecture, moreover, that the recent efforts in

\(^1\)By such a definition, about 550-600 million people live in absolute poverty in the Bank's DMCs according to ADB (1989). The World Bank (1990a) uses the Indonesian poverty line of $370 at 1985 prices, by which criteria 745 million people in the Asian Development Bank's DMCs (535 million in South Asia and 210 million in East Asia) constituting 71 per cent of the poor in all developing countries, were below the poverty line in 1985.

Definitions of poverty based on satisfying nutrient requirements are controversial because of considerable debate about adjustment capacities of such people (e.g., Srinivasan 1981, 1990a, Sukhatme 1982, Payne 1990). Recent studies of poor populations in Asian Development Bank DMCs (though probably not the poorest members of such societies who tend to be under represented in sample surveys), for example, suggest that the income elasticities of basic nutrient demands are of the order of magnitude of 0.05 to 0.30 while the income elasticities for food expenditures for the same people are two to ten times as large. The differences, if due to informed food choices by such individuals, suggest considerable adjustments in food composition and in leakages between household food purchases and food consumption by household members with marginal income changes, which may be surprising if such individuals are consuming less than adequate nutrients. For evidence regarding such elasticities in Bank DMCs and discussion of these issues, see Alderman (1989), Behrman (1988c, 1991), Behrman and Deolalikar (1987a, 1989c, 1990b), Bouis and Haddad (1990), Garcia and Pinstrup-Andersen (1987), Kumar (1987), and Pitt and Rosenzweig (1985).

\(^2\)According to the World Bank (1990a), for example, between 1960 and 1980 consumption per capita increased by almost 80 per cent in the developing world, with benefits for the poorest in many developing countries. One DMC, Indonesia, for instance, reduced the incidence of poverty by 41 percentage points in 17 years in the 1970s and 1980s, while experiencing relatively high average economic growth at the same time (also see Section 4.4.1 below).
various DMCs to use macro policies to adjust their economies to changing international conditions and to domestic macro imbalances probably have caused further deterioration in the plight of the rural poor.

The Bank has attached high priority to poverty alleviation. The Bank's Task Force on Poverty Alleviation has stressed the need for additional studies of the determinants of poverty and has recommended intensification of the Bank's economic and sector work related to poverty alleviation. The project of which this paper is a part is directed towards establishing a better understanding of the issues related to rural poverty determination in the Bank's DMCs. The purpose of this paper is to consider the relation of rural poverty to macro-economic policies in order to help provide perspective and to help develop a research strategy for the seven DMC studies on specifics of rural poverty. This paper, thus, is conditioned by the limited time horizon and resources available for the specific country studies. In such studies, for example, there will not be any primary data collection, but instead dependence on existing data sources.

This paper is organized as follows. Section 2 considers the general framework for analysis of the impact of macroeconomic policies on rural poverty and the issues that arise about these relations. Section 3 suggests how some of these issues can be examined within the DMC studies that are part of the project, with illustrations from some previous studies. Section 4 summarizes some recent cross-country and country case studies that attempt to analyze some dimensions of the impact of macro policies on factors affecting the rural poor in DMCs and other developing countries and that may be suggestive regarding issues and research methods for the specific studies of DMCs in the present project. Section 5 gives conclusions.

3 The specific country studies and the collaborative research institutions are Bangladesh (Bangladesh Institute of Development Studies), India (Delhi School of Economics), Indonesia (Bogor Agricultural University), Philippines (UPECON Foundation, University of the Philippines), Republic of Korea (Korea Development Institute), Sri Lanka (Marga Institute), and Thailand (Thammasat University). In addition to the present study, there also are five other studies that are designed to help provide similar perspectives on, respectively, land tenure and land reform, rural credit, rural institutions (e.g., extension services, systems of delivery of basic services -- such as water, electricity, health and education, NGOs), women and rural poverty, and environment and rural poverty. See K. Bardhan (1990), Evenson (1990), Hansen (1990), Otsuka (1990), and Siamwalla (1990). Finally Srinivasan (1990b) discusses conceptual, measurement and policy issues regarding rural poverty.
Section 2. General Framework for the Analysis of the Impact of Macroeconomic Policies on Rural Poverty

Poverty refers to the limited command over resources of individuals, often aggregated together for many purposes -- including sharing of resources -- into households or into other groups. For simplicity of presentation (unless it makes a difference), I hereafter generally use the term "household" to refer to the basic units the command over resources of which are of concern. There are important questions concerning the distribution of resources within households and the formation and disintegration of households, but generally these are not the focus of this paper in part because of data problems, though some attention is given to such phenomena in Section 3. However, it should be noted that some macro phenomena may impinge differentially on different types of individuals. For example, if there is division of labor by gender and females concentrate on nontraded goods and males concentrate on exportables, then relative price changes induced by devaluation may favor males over females (e.g., Collier 1990).

The command over resources of a household depends upon the assets owned by that household, the prices for the use or sale of those assets, net transfers received by the household in money or kind, and the prices that the household must pay for goods and services that it consumes. Assets are broadly defined to include physical assets such as land, human resources such as labor time at various skill levels, and financial assets such as bank accounts. Prices are broadly defined to include money prices, time costs, and transportation costs and therefore, inter alia, local availabilities of social sector services related to health, nutrition, and education.

The micro determinants of the command over resources of a rural household are affected by the larger macro context through intermediate or "meso" variables. These meso variables are the conduit mechanisms that transfer the effects of macro events and policies to the proximate micro determinants of the household's command over resources. On a general level the meso setting is likely to be affected by macro events

---

4 There are some recent studies that indicate, for example, that in some of the DMCs there is considerable sharing of resources across households, though there is some dispute over the extent to which such sharing is for altruistic or for insurance reasons (e.g., Ravallion and Dearden 1988 on Indonesia; Rosenzweig 1988, Rosenzweig and Stark 1989, Townsend 1989, and Behrman and Deolalikar 1987b on India).

5 There has been increasing interest in what happens within the household, particularly with regard to possible discrimination by sex and by age and with regard to what difference it makes who has control over resources in the household. For examples or recent studies for some of the DMCs (e.g., India, Bangladesh, Thailand), see Behrman (1988a,b, 1990c), Behrman and Deolalikar (1990b), Pitt, Rosenzweig and Hassan (1990), and Schultz (1990). For focus on women see the general surveys by Schultz (1989, 1991) and Behrman (1990d) and the paper in the present project by K. Bardhan (1990).
and policies in two major respects. First, by altering the markets in which households and other micro entities function. Second, by changing the infrastructure in which households and other micro entities operate. The purposes of this section are to set out the most important dimensions of the meso environment for the determination of the command over resources of rural households and to review how these dimensions may be affected by macro policies. I begin with a brief discussion of major macro policies, then consider the two major elements of the meso setting that serve as conduits for the impact of macro policies on the micro determination of the command over resources of rural households, and finally discuss the empirical issue of linking macro policies to these conduits.

Subsection 2.1 Major Components of Macro Policies

It is useful to think of macro policies for the DMCs being largely of two types: stabilization policies that aim to return an economy to an equilibrium path from which it deviated due to unanticipated shocks and adjustment policies that attempt to change the path of the economy to a new equilibrium. Often the two types of policies use the same tools (e.g., currency devaluation, fiscal restraint) and sometimes the two objectives are intermixed (e.g., often adjustment programs have an initial stabilization phase). But the conceptual distinction is useful because the differing objectives and the differing time periods of relevance may affect the relative effectiveness of the policies depending upon which objective is paramount.

Economic theory provides frameworks for analyzing many of the possible links between both types of macro policies and the micro determination of rural households' command over resources through changing the meso setting. Such frameworks are useful for gaining understanding of these complex phenomena given the very imperfect state of relevant information. But before sketching out the implications of economic theory for this topic, some limitations of economic theory in this regard should be noted. First, for some links in the process there is considerable controversy about which of several alternative theories is most relevant (e.g., to what extent private behavior offsets macro policies). Second, economic theory leads to clear-cut predictions regarding the direction of changes in the meso setting only by abstracting from some possibly relevant characteristics of the situation. Third, often the net effect depends on which of several counteracting responses is most important, which is an empirical -- not a theoretical -- question. Fourth, even if the direction of an effect is predicted clearly by economic theory, the magnitude still is an empirical matter. Fifth, economic theory is most useful regarding comparative statics between equilibrium outcomes, but has very little to say concerning the nature or the lag in adjustments between equilibria.

---

Addison and Demery (1985, 1989), Behrman (1988b, 1990e), Behrman and Deolalikar (1988b, 1990c) and Demery and Addison (1987) present more extended discussions of these issues with focus on macro adjustment policies on which the present presentation draws.
For all of these reasons economic theory often leads more to raising useful questions about changes in the meso setting induced by macro policies that may affect the command over resources of rural households rather than providing precise answers for particular DMCs.

Beyond these general caveats about what economic theory can tell us about the impact of macro policies on the rural poor, there are limits to what generalizations can be made about this topic for the DMCs because of the variety across the DMCs in a number of important dimensions, some of which are related to their stage of economic development. I now illustrate this point with respect to five characteristics in which there is substantial variance across the DMCs. First, the monetization and commercialization of the economies vary enormously. In some cases most of the economy is monetized. In other cases there are large, almost autarkic subsistence and semi-subsistence subeconomies, that for the most part are outside of the influence of most stabilization and many adjustment policies (though, among the latter, infrastructure development may accelerate the integration of such parts of the economy into the national economy). Many households in such cases primarily produce their own consumption goods and sell but a little of their production on markets. Second, in many of the DMCs the nonbank public hold a very small proportion of the public debt, the credit extended by the banking system to the government is a large part of total credit, and the market for short-term government paper is not well developed. In such countries, open market interventions for short-term stabilization have limitations, and the distinction between borrowing (i.e., the issue of interest-bearing obligations) and money creation (i.e., the issue of interest-free liabilities) for financing longer-term governmental deficits is blurred. Third, the regulation of the foreign exchange market varies enormously across DMCs. Near one extreme are countries of the Indian subcontinent with exchange rates fixed to a currency basket and numerous quantitative restrictions. If such regulations are effective, there will be much less spillover into international financial markets of the impact of domestic macro policies. Near the other extreme is the Republic of Korea, with flexible exchange rates and far fewer quantitative restrictions. Of course the question of regulation is a matter of policy decision, not a permanent characteristic. One dimension of policy, in fact, can be to change such regulations (see Section 2.1.5). Fourth, regulation of the domestic economy also differs substantially across DMCs. For example, in some cases the banking and insurance systems are state monopolies, so that the government has a direct means of influencing credit allocation and the investment of insurance funds. This may mean that such governments more effectively can attain certain targets, such as those

---

7 There are further differences with respect to how markets function in various DMCs that I discuss at the start of Section 1.2.

8 Even if they sell but a limited share of their production as marketed surplus, however, if they recognize that the opportunity cost of consuming the rest of their production varies with market prices they may be relatively sensitive to market prices (e.g., Behrman 1966).
related to sectoral allocations of official credit, though the impact of such attainments on more basic developmental and distributional goals may be negative because of distortions that such controls introduce and related rent seeking or they may be practically nonexistent because of fungibility. For another example, some of the economies of the Indian subcontinent have investment controls in the form of capacity licensing, which (if effective) constrain private responses to changes resulting from macro policies. Once again, however, the reservation of certain activities to the state and the nature of the regulatory environment are not given a priori, but reflect policy choices that can be changed.

Fifth, the reliance on direct taxes varies greatly across the DMCs. This means, for example, if such taxes are changed in order to change relative prices in hopes of inducing production shifts, there also may be important effects on the governmental deficit in those DMCs in which such direct taxes account for a large share of governmental revenues (e.g., Section 2.1.4).

Because of these differing features of the DMCs, it is impossible to cover all possibilities for all DMCs in a paper of this length. Therefore I attempt to point to some general features and to how they may be modified by some of these characteristics, but must leave to the individual country studies the full incorporation of the implications of the particular features that are relevant for each country.

With such caveats in mind, I begin with a discussion of the impact of the major components of standard macro policies on the meso market and infrastructural environment in which micro determination of the command over rural resources of rural households occurs. To give the discussion more explicit focus, I consider in particular various major macro adjustment policies that have been of major concern recently for some of the DMCs, as well as for many developing countries elsewhere. However since macro stabilization policies also may be important, whether as part of longer-run adjustment programs or as separate efforts, I also comment to a lesser extent on the implications of such policies. Of particular relevance for this purpose is the impact of macro adjustment and stabilization policies on the meso setting determining the prices for the use of the resources under the control of poor rural residents and other dimensions of the options available to such people.

The macroeconomy determines the aggregate supply and demand of goods and services, the overall price and employment levels, and the aggregate balance of trade in goods and services and international financial flows with the rest of the world. In the simplest model, the short-run equilibrium aggregate output (income) level and price level are determined by the intersection of short-run aggregate demand and aggregate supply. If there are underlying price and/or quantity rigidities, short-run equilibrium may involve significant unemployment of labor and other resources.

Aggregate demand depends on private and governmental consumption and investment and net foreign investment (i.e., exports minus imports). These major demand components, in turn, depend primarily on real permanent income and wealth (and the distribution of each among members of society), governmental expenditure minus revenue, prices of international goods and services relative to prices of domestic goods.
and services, and credit availability and/or interest rates. Recent developing country macro adjustment policy, for example, is thought often to have retrenched governmental activities, increased availabilities of imported substitutes, restricted credit and increased interest rates. All of these changes tend to shift the aggregate demand curve to the left, though increased exports might work in the opposite direction.

Expectations also may affect aggregate demand and may cause behavioral responses to offset anticipated policy changes, as in the so-called Phillips curve tradeoff between inflation and unemployment. For given inflationary expectations, the Phillips curve indicates that the economy can be moved along a tradeoff between inflation and unemployment by contractionary policy. However such policy may reduce inflationary expectations, which causes the Phillips curve to shift downward so that there is little impact on output and employment. There are some who hold an extreme position regarding rational expectations and argue that the impact of privately-held expectations offsets any anticipated policy change, thus rendering most economic stabilization and adjustment policies mostly ineffective. The available evidence does not seem to me to warrant such an extreme position, but it does seem that expectations can affect significantly policy impacts.

An important distinction between the short-run macro stabilization policies and longer-run macro adjustment policies noted at the start of this section may be with regard to their effects on expectations, particularly since the former are supposed to be transitory and the latter are supposed to be long run (though in both cases there are issues of credibility with the private sector both home and abroad). If short-run macro stabilization policies are expected by private entities to be transitory, private behavioral adjustments to them -- particularly ones that require longer-run investments -- are likely to be limited to adjustments for which the gains are expected to be fairly immediate and the adjustments themselves perhaps reversible. If longer-term adjustment policies are expected by private entities to imply longer-run changes in the macro environment, private entities are more likely to make basic adjustments in their behavior, including longer-run investments.

Of course there is a basic problem for the government of a DMC that has need for such longer-run adjustment policies with regard to how to make the longer run adjustment policies credible to private entities. The World Bank (1990b) argues that a critical part of such adjustment programs is the proper sequencing, in part to maintain credibility. The most obvious conditions under which this position seems to have considerable plausibility is if the adjustment program is initiated in circumstances in which there are considerable macro imbalances.9 In

---

9The World Bank (1990b: 7-8) states that "The sequencing of a country's overall adjustment program should start with reforms that substantially reduce the largest distortions impeding the efficient allocation of resources and limiting output growth. When a country has acute macroeconomic imbalances, that is the largest distortion.... Since the ultimate success of adjustment of all kinds requires a sustainable
such a case, if there is not successful stabilization to eliminate the macro imbalances, the imbalances themselves are likely to obscure the effects (if any) of longer-run structural adjustment policies and to undermine the credibility of the longer-run efforts. If there is high inflation with large transitory variability in relative prices, for example, it will be more difficult for private entities even to discern relative price shifts due to longer-run adjustment policies, as well as for them to have firm expectations that any such relative price changes that they do perceive are likely to last very long. However, while such a position seems sensible in the case of high inflation, there seems to be a lack of agreement about just what imbalances are likely to make it desirable to weight relatively heavily the pure stabilization component of such a program (e.g., how high a rate of inflation signals such acute imbalances), whether such short-run emphasis on stabilization might imply too slow movement on the longer-run adjustment issues and thus reduce credibility about the latter, and whether stabilization in fact can be undertaken without some important longer-run structural changes such as in the governmental revenue and expenditure systems (e.g. see Corbo 1990 for papers and comments on some of these topics).

Returning to the aggregate demand curve per se, if interest rates or inflationary expectations rise, aggregate demand is likely to shift to the left. This causes a decrease in equilibrium real output and the aggregate price level, with the balance between price and output changes depending on whether the initial equilibrium is on a more vertical or more horizontal segment of the aggregate supply curve. In many developing economies recently there seems to have been excess capacity, so the changes might have been concentrated in quantities instead of prices.

Aggregate supply in the short run reflects the conditions in short-run variable input markets, primarily for labor, intermediate inputs, financing, and risk shifting/sharing, given capacity production levels. The short-run supply curve is likely to shift to the left, resulting in a higher price level and lower output (and income) level if wages, intermediate input prices, or interest rates rise, if rationed credit becomes less available (assuming that the parallel or "curb" financial market is not well developed), or if production becomes less efficient. Often macro stabilization and adjustment programs attempt to restrain wages and to increase productivity through greater exposure to world markets, both of which shift the aggregate supply curve to the right. However the greater cost of imported inputs due to devaluation and higher interest rates work in the opposite direction. In the longer run, aggregate supply tends to shift to the right with increased macroeconomic situation, the program design should ensure macroeconomic stability. When a macroeconomic situation is initially unsustainable, the early phase of the program should focus on measure to restore macroeconomic stability. Unless there is macroeconomic stability, capital inflows will be wasted or flow back out as capital flight."
physical and human capital, increased efficiency, improved technology, and improved institutions. One critical question is how long does it take for the longer run to occur. The answer to this question depends on a number of considerations discussed above and below, including how credible the program is, how monetized is the economy, and how much investment decisions are constrained by quantitative regulations such as capacity restrictions and limitations on international capital flows.

To model the impact of adjustment policy on all of these processes, the relevant product, factor (i.e., labor, capital, land), financial, and risk shifting/sharing markets must be represented. Addison and Demery (1985) provide a diagram that illustrates these complexities. Conceptually an appropriately specified (e.g., to include the rigidities) economy-wide model in the computable general equilibrium (CGE) class may be useful for organization and analysis (e.g., Dervis, demelo and Robinson 1982, Adelman and Robinson 1988), though such an approach as usually applied does not incorporate well features such as expectations, monetary phenomena, adjustment phenomena, fragmented markets, and quantitative restrictions.

With this background, I now consider the distributional effects, particularly regarding the rural poor, of some major components of stereotypic macro economic adjustment policies.

2.1.1 Currency devaluation often is a key component of adjustment programs and often is a component of short-term stabilization programs. The wisdom of devaluation, however, has been the subject of much debate because of controversy over the effectiveness of devaluation in eliminating supply-demand imbalances, inflationary effects of devaluation, distributional and related political consequences of devaluation, and the difficulties in assuring that a nominal currency devaluation leads to a real currency devaluation (i.e., an increase in the relative price of traded goods in terms of nontraded goods).

Devaluation increases the costs of imports and the prices of exports in terms of domestic currency. The impact of devaluation on the balance of payments, as well as on those in rural poverty, depends upon the extent of expenditure switching and the extent of expenditure changes.

10 Part of this capital may be private and part may be state, with interactions between the two. Often, for example, public infrastructure (see Section 1.2.2) is thought to be complementary with private capital.

11 These markets are discussed further in Section 1.2.1 below.

12 However, as noted at the start of this section, different DMCs have much different experiences with regulating foreign exchange markets.

13 If the country is a large enough actor in any international market to affect international prices, there is a further question about the nature of that impact. There is not likely to be such an impact for most products of most DMCs, since most of their exports are small relative to world markets (though there are a number of exceptions).
An increase in the prices of internationally traded goods relative to nontraded goods causes expenditure switching. A priori such switching would seem to depend in part on expectations regarding the permanence of the relative price changes given adjustment costs. Therefore there is likely to be much less such switching for devaluation that is perceived to be transitory in real terms than for devaluation that is perceived to be more permanent in real terms (e.g., real devaluation that is viewed as transitory, whether intentionally as part of a stabilization program or unintentionally due to an expected failure to restrain the price of nontraded goods, is likely to have much smaller and more temporary effects than longer-run real devaluation.) Such shifts benefit the inputs used relatively intensively in traded-good production and the consumers (relatively) of nontraded goods under strong simplifying assumptions (i.e., perfect competition, profit maximization, no externalities, well-behaved production functions). Given such assumptions, the implications for the income of the rural poor in a particular DMC, thus, depend on the factor intensity of production and the nature of consumption patterns.

If tradeable goods and services largely are produced in capital-intensive industries, for example, the factor-intensity effect tends to favor profits, increase income inequality, and probably work to the disadvantage of the poor in general, including those in rural areas. To the extent that tradeables are basic foods produced largely by poorer members of society as in some DMCs, however, the factor intensity effect is beneficial to these poor. Likewise, the consumption effect depends on the nature of the traded goods and who consumes them. To the extent that staple foods that loom large in the consumption basket of poorer members of society primarily are tradeables, the consumption effect itself is likely to worsen the position of the poor in general. However poor farmers and landless rural laborers producing competing staples may be net gainers if for them the factor-intensity effect outweighs the consumption effect. Such considerations lead to questions in any particular case about relative factor intensities in production and relative marginal consumption propensities. Obviously there is considerable variation among the DMCs in these respects.

The more one moves away from the simplifying assumptions noted above, the less strong are any predictions about the effects on distribution and on the poor of expenditure switching due to devaluation. If the formal-informal sector distinction is important, for example, the above results hold if and only if factors are mobile. But if factors are not completely mobile between the formal and informal sectors, Knight (1976) demonstrates that there are no unambiguous predictions. Returns to the factor used relatively intensively in the production of traded goods and services increase in response to devaluation, but both the formal and the informal sectors may produce such products with very different factor intensities (i.e., capital-intensive in the formal sector and labor-intensive in the informal sector as, perhaps, in tourism or textile production).

Devaluation also may induce aggregate real expenditure changes, maintain this "small country" assumption throughout this section.
with feedback on distribution and on the poor. The conventional result is that eventually exports expand and imports decline in response to persistent induced relative price changes. This eventually improves the balance of payments in international currency and probably increases aggregate demand (assuming some unused capacity and/or efficiency inducements of devaluation) and income. However such a process may be slow, particularly if exports are goods for which gestation periods are long (e.g., tree crops such as palm oil and rubber) and for which initial capacity is more or less fully utilized, or if there are considerable doubts about the longevity of the real devaluation.

There also are partially offsetting factors that may lead to devaluation being contractionary. On the demand side, the net trade component of aggregate demand in domestic currency may fall (particularly before exports respond) if there is an initial large deficit, consumption and investment may decline if wealth declines (due to an increase in net foreign debt in terms of domestic currency), or if income falls (due to more rapid induced inflation than changes in factor payments), and investment may be reduced because of higher prices for tradeable investment goods. On the aggregate supply side, contractionary factors include the increasing costs of noncompetitive, imported intermediate imports and wage indexation, both of which tend to shift the aggregate supply curve to the left with devaluation. These contractionary demand and supply factors are perceived by many to dominate in the short-run response to devaluation, though many of these contractionary effects would seem to be less important for the DMCs with large agricultural sectors than possibly for other countries. If the contractionary factors dominate in the short run, the reduction in real expenditure is likely to reduce the real purchasing power of many poor people. This might happen, for example, as a result of reduced demand for the services and products of the informal sector, including many in rural areas. In addition, workers who otherwise might have been employed in the formal sector may move into the informal sector — along with people who enter the labor force because other household members have lowered earnings or have lost work. This labor supply increase, along with reduced demand, would tend to increase unemployment and/or reduce labor returns in the informal sector.

2.1.2 Contractionary fiscal and monetary macro policies are part of most macro stabilization and structural adjustment programs since excess demand is perceived to be at the heart of the problem of imbalance that requires stabilization to correct perceived temporary fiscal imbalance and an adjustment program to correct any unsustainable systemic fiscal imbalance.14 Supply expansion takes time, so demand restraint is thought to be essential in the short run. Among the major tools for restraining aggregate demand are contractionary fiscal and monetary policies. Such policies are likely to shift aggregate demand

14I here include contractionary fiscal and monetary policies together because, as noted at the start of this section, in most DMCs there is not much scope for independent monetary policy. However, as part of macro policy, greater independence could be given to monetary policy.
and aggregate supply to the left initially, causing a fall in equilibrium output and income and an ambiguous change in the equilibrium price level. The extent of such effects, however, may depend critically upon considerations discussed above such as how private expectations respond to the fiscal and monetary policy changes, to what extent is the economy monetized, what is the nature of financial markets, and what is the nature of the regulatory environment. If these policies have some negative impact on output (as seems likely for most DMCs, though with variance among them due to factors such as those mentioned above), the balance of payments is likely to improve due to the decreased real aggregate purchasing power (thus reducing imports and increasing exports), reinforced -- if prices are sufficiently flexible -- by a decline in the relative price of nontraded goods and services. Such output reductions, and the related declines in labor demand, probably lessen the real income of the poor for reasons discussed above.15

The duration and extent of the negative impact on the income of the poor depend on several considerations beyond the extent of the initial leftward shifts in aggregate demand and supply. One important consideration, of course, is the extent of and gestation required for a longer-run positive supply shift. The larger and the quicker such a response, the less the likely toll on the real income of the poor. A second consideration is how the government cuts expenses and increases revenue and how such changes affect the poor. Reductions in credit subsidies to capital-intensive manufacturers or increases in income taxes are not likely to have much negative impact on poorer households in general nor on those in rural areas, but reductions in public health expenditures, food stamps, school lunches or subsidies for inferior foods may have significant negative income and price effects on many of the poor. To the extent that a major asset of the poor is their human capital, cuts in health, nutrition and education programs from which they benefit are likely to have negative long-term effects on their current and future command over real resources.

2.1.3 Direct wage and/or price policies often are part of adjustment programs. Since wage increases could offset partly or wholly the impact of economic adjustment policies by shifting the aggregate supply curve to the left, adjustment policy packages often include some limitation on wage increases for governmental and formal-sector employees. If effective, such policies reduce the real income of individuals who would have been employed in the affected occupations without the wage controls. This may increase overall income inequality, but is not likely to have a strong negative effect on most of the poorer members of society because the poorer people are not likely to have been in such occupations if there were no wage policy. In fact, to the extent that the limitation on wages is effective, these relatively high-

15 There are possible exceptions once again with respect to some components of labor income. For example, if prices fall but nominal wages in the formal sector do not fall, workers who receive such wages may experience an increase in real income. However, such workers are not likely to be among those in poverty, particularly in the rural sector.
wage occupations are likely to be more accessible to the otherwise relatively poor members of society than they would be if there were no effective wage controls.

Price policies as part of structural adjustment programs are likely to involve increases in or freeing of previously controlled prices -- such as for transport, fuel, food staples -- to induce supply expansion, reduce government subsidies, and discourage demand. If such price controls were effective prior to the adjustment program, such a policy shift means increased nominal prices for consumers of these items. This is likely to reduce their real incomes, particularly if there is an effective "asymmetrical" price policy, in Foxley's terms (1981: 206), of restraining their wages at the same time that prices are increasing. At the same time the incomes of producers of these commodities, which are likely to include a number of rural poor involved in food production, are likely to increase.

2.1.4 Policies beyond devaluation to limit foreign exchange uses and to encourage foreign exchange generation also often are part of economic adjustment packages. Commonly imports are liberalized with reductions in quantitative restrictions and tariffs.

Reduced import tariffs have at least three types of effects on income distribution. First, such tariffs are a major source of governmental revenues in some DMCs. If reduced tariff rates do not encourage imports a great deal, such revenues fall and thereby increase the governmental deficit, thus partially offsetting the contractionary fiscal policy discussed above. Second, reduced import tariffs change the relative price structure to favor production of exportables. Within the simplest trade model, a country exports goods which make the most use of resources which are relatively abundant in the country (presumably unskilled and low-skilled labor for a developing country trading with a developed economy). This may lead to income benefits for many rural poor. Third, there is an impact on the relative prices that consumers face that depends upon the marginal propensities to consume importables relative to alternatives. If the importables are luxury goods consumed relatively by the rich, the consumption price effect of reduced tariffs in itself improves the relative position of the rich. Reduced nontariff import barriers to imports (such as quantitative restrictions) have the second and third effects just noted, but not the first. Instead, the losses from having access to such quotas are likely to come from the administrators and recipients of such quotas. Neither of these groups is likely to include many poor rural people.

2.1.5 The composition of macro expenditures and activities often changes substantially as part of macro stabilization programs and even more so as part of macro adjustment programs. Though such compositional changes arguably might be considered to be related to micro dimensions of policy rather than the macro policy that is of interest in this

---

16To the extent that the price controls were not effective to begin with, removing price controls or raising price ceilings has little distributional impact except for reducing the legal and extra-legal incomes of the members of the price control and monitoring organizations (who are not likely to be among the poorer members of society).
paper, they merit at least brief mention since they relate to the basic spirit of many structural adjustment programs, though perhaps less so for many short-run stabilization programs. There are at least three often discussed compositional dimensions related to changes in macro policies.

First, if governmental expenditures are contracted in stabilization programs that are free standing or that are part of longer-run adjustment programs, there is the question of whether they are changed in ways that are deleterious for the human resource accumulation and the welfare of the rural poor as seems to be claimed by many (e.g., Cornia, Jolly, and Stewart 1987, 1988, Jolly and Cornia 1984, and a number of references in Hicks and Kubisch 1983, 1984). However such a possibility hardly is inevitable for at least two major reasons. First of all, in most DMCs and other developing countries the rural poor are not major beneficiaries of governmental programs since such programs tend to benefit primarily urban and middle and upper-income individuals, though with substantial variance across countries. Some such programs, in fact, may have major negative effects on the rural poor, such as efforts to keep the real price of basic staples low for urban consumers which may feedback on the real price of products produced by the rural poor. Therefore, cuts in such programs are not likely to have impact primarily on the rural poor and, in some cases, the impact on the rural poor may be positive. However, if the rural poor receive some positive benefits from some governmental expenditures such as those on the social sectors, the reductions in their benefits in absolute terms may reduce their current welfare and their capacities for human resource investments. Secondly, as part of macro stabilization cum adjustment programs there can be rationalizations of the patterns of subsidies for the social sectors that may benefit the rural poor. For example, if there are substantial reductions in subsidies for higher levels of education and specialized curative health, some additional resources may be available to subsidize basic education and health measures in rural areas even if overall governmental social expenditures are reduced. Such a shift might both improve efficiency (since the benefits of higher education and of curative health are likely to be largely private but there may be larger externalities to basic education and health measures) and to improve the situation of the poor, rural and urban (e.g., see Jimenez 1986a,b).

Second, there is the general question of the extent of changes in current consumption versus investment expenditures. There seems to be some tendencies in many stabilization programs, whether freestanding or part of adjustment programs, to attempt to cushion negative effects of macro stabilization policies by cutting back on investment relative to current consumption (e.g., see World Bank 1990b, Corbo and Rojas 1990, 14

---

17 There is some controversy about to what extent such effects have occurred. Section 4.3 summarizes one recent cross-country study that does not find much evidence of such effects. Section 4.4.2 summarizes a case study with the same conclusion despite considerable emphasis on the deleterious effects in this case in Cornia, Jolly and Stewart (1987, 1988).
Huppi and Ravallion 1990). There is a tradeoff, of course, between current and future consumption. If cuts are too severe for investment, more future consumption will be given up than would be desirable.

Third, there is the general question of for what purposes governmental resources best are used for direct production and for what purposes they best are used for regulation. On a general level there seems to be some consensus that due to market failures of various sorts it may be desirable for the government to undertake directly certain activities. Typically the social and economic infrastructure development and maintenance that are discussed in Section 2.2.2 are examples of areas in which the government often is thought to have a comparative advantage. But it should be emphasized that just because there is a market failure does not mean that there will not be a government policy failure. Many market failures, for example, reflect information problems, and it is not at all clear that the government generally has better information than do private entities -- or, if it does, for that matter, that the best resolution is direct governmental production rather than governmental provision of information. Nevertheless, there is some fairly wide presumption that (because of externalities, increasing returns to scale, public goods characteristics, and/or distributional goals) the government has a comparative advantage in producing and perhaps maintaining certain dimensions of the social and economic infrastructure. What happens to such infrastructure over various time periods, moreover, affects the expected private returns to investments of various sorts since such infrastructural projects tend to be complementary with private inputs in the production process. Therefore, cutting back on such infrastructural investment and maintenance as part of macro stabilization and adjustment programs may have negative implications for shifting the economy to a new sustainable higher growth path. At the same time, there are strong advocates of cutting back governmental productive and regulatory activities in areas in which it is perceived that the government does not have a comparative advantage. General liberalization and privatization of various activities often is a central part of macro adjustment programs. P. Bardhan (1990: 3-6) articulates a middle ground on these issues that seems to be shared by many:

The traditional development literature emphasized market failure in signalling investment allocation and the importance of coordination that aggregate planning can achieve. ... The neoclassical political economy literature ... pointed attention to how the regulatory state spawned an enormous waste of resources in rent-seeking activities, over and above the standard economic losses due to misallocation effects of policy-induced distortions and the macroeconomic impotence of anticipated polices.

The recent literature on imperfect information is more agnostic in its implications for the role of the state. On one hand, the traditional neoclassical models ignore that under imperfect information the market equilibrium is in general not Pareto efficient; that not all relevant information is, or can be, incorporated in prices; and that decentralized market mechanisms under private information may not handle well some problems of coordination and urgent decisions... which could be more readily
solved by central direction. On the other hand, many of the information problems are no less acute for the planning and regulatory authorities than for the private sector.

One important aspect of the quality of state intervention that the recent East Asian success stories highlight is something that the critics of neoclassical theory, in their eagerness to emphasize the highly interventionist nature of the East Asian state, often overlook: ...the intervention schemes have worked closely with the market, and the state's alertness in using the signals emanating from world markets to judge dynamic efficiency has helped keep firms on their toes and prevent infant industries from turning into inefficient geriatric protection lobbies. However convinced one may be of the pervasiveness of market failures in developing counties, one must recognize the vital disciplining function of competition in encouraging quick learning and cost and quality consciousness.

Nevertheless there are differential perceptions about in what activities the government has a comparative advantage in participating in direct production among the DMCs, as well as different degrees of entrenched bureaucracies that oppose such liberalization in part to preserve their influence and rents. Therefore, across the DMCs there is considerable variance in the extent of governmental regulation and direct productive activities and in the likely changes in governmental regulation and in direct governmental activities in the near future. As is discussed at the start of this section, such variations affect importantly the impact of other macro policy changes on the economies.

Subsection 2.2 Major Elements of the Meso Setting that Transmit the Impact of Macro Policies to the Command over Resources of Rural Households

As noted above, the meso setting relevant for the determination of the command over resources of rural households and other relevant micro institutions includes two broad conduits for the transmission of macro economic policies to these micro institutions, markets and infrastructure. These are now considered in turn.

2.2.1 Markets: Markets further can be characterized in a number of ways. Probably most useful for the present case is to distinguish among factor, product, and financial markets and markets for pooling and/or shifting risks. Each of these types of markets may differ across various DMCs in a number of important dimensions: First, the extent of segmentation may vary because of geographical size and natural variations, as well as because of differences in infrastructure, particularly related to transportation and communication. Moreover, the extent of fragmentation may change seasonally with weather conditions. The more fragmented are markets, the less that macro policies tend to have impact ceteris paribus, with the notable exception of macro policies related to changing that infrastructure. Improvements in

18 Or at least differing realizations, as is discussed at the start of this section.
infrastructure, of course, also can have important effects on efficiency and on the market power of local monopolies/oligopolies and monopolies/oligopsonies. Second, the extent to which these markets are formal (in the sense of being subject to explicit contracts and governmental regulations) or informal also may vary considerably because of differences in the extent and effectiveness of governmental market regulations and in relative importance of the "modern" sector. Probably more informal and less regulated markets tend to adjust more easily and thus tend to be less rigid in ways that contribute to macro imbalances, though sometimes even what appears to be informal markets seem to be characterized by implicit contracts that may contribute to such rigidities. Third, a related difference among markets and across DMCs is the extent to which markets are spot markets with the transactions completed contemporaneously versus markets in which there are important intertemporal dimensions. Of course financial markets and markets for pooling and shifting risks tend to have important intertemporal dimensions, sometimes related to speculation, hedging and insurance functions. Such intertemporal dimensions tend to be less prevalent in factor and product markets, but in some cases still may be important. There probably is some tendency for markets to be more flexible and more responsive the less is their intertemporal dimension, so that rigidities underlying macro imbalances are less likely to be problems. But the opposite might be the case for some of markets for pooling and shifting risk. The more effective and extensive are such markets, the less the danger to individual economic entities of suffering from the impact of unanticipated macro shocks and macro policies, so the more they can proceed with longer-run actions despite the possibility of unanticipated events. However, often such markets are costly and do not permit insuring against all states of the world, nor even against many of the more likely states of the world. Fourth, there is likely to be variance across markets and across DMCs in the time paths of market responses to changes in macro policies, depending on many of the other factors considered here and above. In some spot markets, for example, the initial impact of a successful macro stabilization cum structural adjustment program might be in one direction, but the subsequent effect might be the opposite. For example, the impact of wage rates of a contractionary program as part of a successful effort to establish sustainable governmental budgets might be negative, but the movement to a higher growth path associated with the successful structural adjustment part of the program eventually may have a positive effect on wage rates. Therefore, in speculating on the impact of macro policies on markets, it may be important that the time period be specified clearly. Fifth, there are considerable differences across markets and across DMCs for any given type of market in the extent to which nonmarket transfers and gifts, exchange and other arrangements substitute for market arrangements. In some of the DMCs, such arrangements substitute substantially for functions that in other DMCs may be conducted through markets, perhaps more in rural than in urban areas. A number of organizations serve such functions -- extended families, labor exchange groups, castes, clans, benevolent societies, among others. The more extensive are such nonmarket arrangements, the less that policies the effects of which are transmitted primarily through markets will have
an impact. That such differences as these five across markets and across DMCs may importantly affect the impact of macro stabilization and macro adjustment policies in different DMCs should be kept in mind in interpreting the following discussion of the major types of markets for a particular DMC.

Factor markets are important in at least three respects: First, for those many poor who work as employees, such markets are the major source of their income. This includes rural landless laborers, who in many DMCs appear to be among the poorest members of society. It also includes an important part of the income of many rural households that own limited land area and supplement their income from own production with labor market earnings. If stabilization efforts or the initial stage of adjustment involves retrenchment, the effects on wage rates and employment options in these markets initially may be negative. If the adjustment program is successful, these effects are presumed eventually to be positive. Second, changed wages also may have a price effect on the demand for human resource investments in health and education in addition to the income effect just described. Such human resource investments may be critical regarding the persistence of rural poverty and the intergenerational transmission of rural poverty. One aspect of the price effect, for example, is the opportunity cost of time spent in education or in health care instead of in the labor force or in child care for one's own children or for one's younger siblings. If stabilization or adjustment policies result in an initial decline in labor market demand and in real wage rates, the opportunity costs of time devoted to such human resource investments declines, though if the adjustment policy is successful eventually it increases. A second dimension of the price effect refers to the expected return to investment in human resources in terms of labor market rewards. These presumably reflect expectations about labor market developments after the human resource investments, and thus may refer to some time in the future (particularly for education). If an adjustment policy is perceived to have some reasonable probability of successfully improving the economy over what it otherwise would have been without the adjustment program, then it would seem likely that expected productivity returns on human resource investments would increase. However this effect may be dampened by any initial negative impact on labor markets since plausibly current experiences may enter into the formation of expectations about future outcomes. Third, factor market changes also may affect the supply side for human resource investments. If initial restrictive policies result in an initial reduction in real wages of more educated individuals, for example, there may be an initial reduction in the cost of the most important (at least in financial terms) input for supplying health and educational services. With a successful adjustment policy, of course, over time this effect probably

19 The latter effect can be quite important in time allocation decisions, particularly for girls. For systematic analysis in one DMC, Indonesia, see Pitt and Rosenzweig (1990).
will be reversed by increasing demand for more-educated labor. On the other hand, at least in some DMCs more educated individuals seem to be quite mobile internationally (e.g., Malaysia, the Phillipines), so that if their real wages are reduced for long by the macro program the effective domestic supply may shift to the left even in a fairly short time period.

Product markets have at least four important possible dimensions for the concern of this project. First, in most DMCs a number of the relatively poor generate income primarily as small-producers in agriculture. The product prices that such producers face are an important determinant of their income, though there is the question raised above about whether they value all of their income at prices related to market prices or only the marketed surplus. Macro adjustment policies are likely to have a negative effect on these incomes initially (once again probably reversed in the longer run if adjustment is successful) if there is a reduction in overall aggregate demand and if that reduction in other parts of the economy causes laborers to shift into such self-employment. But that is not the only effect. For certain important segments of this part of the economy -- e.g., those involved in the production of tradeables including basic agricultural staples -- the aggregate price effect favoring such products due to devaluation and trade liberalization is likely to work in the opposite direction, and may more than offset any adjustment policy induced decrease in aggregate demand even in the short run (see Section 4.1). Second, parallel to discussion in the previous paragraph, there also is a price effect for such self-employed individuals (including unpaid family workers) that affects both the opportunity cost of their time to invest in human resources and their expectations about the returns to such investments. Third, a major factor affecting household real income of the poor is the relative prices that they face for consumption items. Such prices are likely to decline initially because of the probable initial overall reduction in aggregate demand, though the price effect of devaluation works in the opposite direction for tradeables, some of which (e.g., basic staples) may be very important in the consumption basket of the poor. Fourth, product prices of direct relevance for the longer-run command over resources of the poor are the product prices of human resource investments. The impact on these prices is not immediately obvious. For formal education and curative health care, often

---

20 For some other inputs in the health and education production processes, prices of factor inputs might be expected to increase. Examples include imported inputs, such as specialized personnel and equipment that are not available in sufficiently elastic supply from domestic sources (at least in the short run). Such cases are likely to be relevant relatively rarely except for specialized education and curative medicine.

21 Whatever are these first two effects for self-employed individuals, they also carry over in the relevant factor markets for employees who work in the same or similar activities, with both income and price effects once again.
Macro stabilization and adjustment policies involve a reduction in subsidies and sometimes the introduction of or increases in user fees (which equivalently are price increases). On the other hand, at least in the short run, the possible reductions in the costs of the budgetarily most important input in the educational and health production processes (i.e., more-educated persons) and of greater efficiencies may result in declines in the real market product prices for human resource investments. Moreover, as is discussed in Section 1.1.5, changing pricing policies for these social services could result in benefits for the rural poor at the same time that overall expenditures are reduced since there often are efficiency and distributional reasons to maintain subsidies and to increase supplies of the basic health and educational services that the poor use (at least primarily).

Financial markets may have important effects through facilitating income production, providing seasonal consumption and production smoothing options, and facilitating investment in physical and human capital. Typically adjustment policy attempts to make such markets more efficient by increasing to the opportunity cost levels real interest rates in formal credit markets and by reducing rationing in those markets. The rise in real interest rates, if anything, would seem to discourage investment ceteris paribus. But generally there has been very limited access to such capital markets by poor rural people, particularly for investments in human resources. So the effects depend in substantial part on the extent to which adjustment policy efforts in the formal credit markets spill over into informal markets and on the extent to which there is fungibility in household resources. Once again, the net effects are hardly obvious. In the pre-adjustment situation, for example, even if real interest rates were low (and credit rationed) in the formal credit market, interest rates may have been quite high in the more relevant informal market. Moreover efforts to rationalize credit markets may cause an ongoing reduction in interest rates in the informal markets, and any short-run restraint in aggregate demand may induce a fall in interest rates as well.

Markets for pooling and shifting risks include markets for insurance and futures markets as well as markets for ownership of risky assets. The extent of such markets varies substantially across DMCs (and other) economies. In the cases of some DMCs, such markets almost are nonexistent (though there always are some markets for risky physical assets) and various hedging, speculative, and insurance functions are performed almost entirely outside of market channels. In other DMCs these markets are somewhat developed, but still they often are relatively thin and limited in their coverage. If macro stabilization and structural adjustment policies have not been well-anticipated by the institutions that make such markets, such institutions often are capitalized to such a limited extent that they may not survive any resulting adverse shock. Therefore, perhaps ironically, macro

---

22Kochar (1989), however, notes that interest rates in the informal market may be lower as well as higher than are those in the formal market and presents some evidence of such a phenomenon in one DMC, India.
stabilization and adjustment policies might result in the short run in the demise of a number of such institutions, even though many of those who advocate structural adjustment generally are sympathetic to the development of such market institutions. To the extent that existing markets for sharing or pooling risks are sufficiently robust to withstand adverse macro shocks associated with macro stabilization cum adjustment programs, they can aid private entities to weather such adverse effects by spreading or shifting the risks to others. But in this discussion of markets and risk sharing and shifting, it is important to remember that there are many mechanisms outside of markets that rural residents use to share and shift risks. Well-known examples include product diversification, employment diversification, migration of some household members and sharing of remittances, the insurance function of marriage, and interhousehold transfers within villages.23

2.2.2 Infrastructure: Infrastructure is used here to refer to publicly-provided physical capital and publicly-provided services. In broad terms infrastructure can be subdivided into social and economic infrastructure.

The most important social infrastructure that affects the command over resources of poor rural households in the DMCs probably pertain to the development of human resources, though income transfer programs may be important in some contexts (but not very much so in rural areas of DMCs). The availability and quality of both the capital stock and the current inputs (most importantly the staff) are critical determinants of the publicly-provided human resource-related activities and of their qualities. The current inputs into the process can be altered fairly quickly by budgetary stringencies, resulting in inadequate availability of material inputs of drugs, books, etc. and of personnel inputs such as nurses and teachers. Even with civil service regulations precluding the rapid dismissal of such staff, for example, normal attrition without replacements can reduce the staff size (often quite capriciously from the micro point of view of individual communities) and turnover with less qualified replacements can reduce the quality of such staff. Reduced real wages and salaries for nurses, teachers and other staff as part of budgetary stringency may tend to increase such attrition and turnover. But such effects may not be so large in the short run because overall macro stringency probably will diminish the attractiveness of alternative employment for such individuals, short of emigration abroad (though as noted above, emigration of skilled personnel in some areas has been considerable for some DMCs, including the Philippines, Malaysia, and Sri Lanka). Even if such real wage declines do not cause an exodus of experienced health and education personnel in the short run, they may cause morale problems or encourage moonlighting that reduce the short-run efforts of these services providers. They also may cause longer-run exodus of experienced personnel and less success in

23 For some recent studies that confirm that such mechanisms are important in some DMCs and in other developing countries, see Behrman and Deolalikar (1987b), Cox and Jimenez (1989), Ravallion and Dearden (1988), Rosenzweig (1988), Rosenzweig and Stark (1989), and Townsend (1989).
attracting higher quality new recruits if the adjustment policy is reasonably successful from an aggregate perspective so other opportunities for relatively-well-educated individuals improve and public real wages for the social sectors do not increase rapidly enough. Though the immediate impact of any budgetary stringencies is likely to be mostly on current material inputs and on staff, there may be some important effects even in the short run on physical stock. Clinics, hospitals, schools and training institutions simply may be closed, which may appear to be a sensible rationalization from an overall point of view but still imposes at least a time and transportation cost on those who would have utilized such facilities had they not been closed. The rural poor are likely to be particularly vulnerable in this regard. Maintenance, moreover, often is reduced in such circumstances, which may have a delayed, but still substantial impact on the provision of health and educational infrastructure. Moreover it appears at times that there are threshold effects with regard to maintenance of such capital stock, with the result that the cost of delays may be considerable in the longer run.

Changes in economic infrastructure due to adjustment policies also may have direct and indirect (e.g., through human resource investments, effects on the command over resources of rural households. In the short run these are likely to be three. First, reduction in maintenance and in expansion of transportation and communication systems as part of efforts to reduce fiscal deficits is likely to reduce the demand for agricultural products and for rural laborers and to increase market fragmentation, with negative impact on the income of poor rural households. Second, the reduction of economic infrastructure investment and maintenance, in addition to reducing the demand for human resource investments through reducing income, may increase the time and monetary costs of travel to health and educational institutions and thus effectively increase the price of the use of such facilities to actual and potential users. Third, the macro adjustment policies may affect the expected longer-run quality of the economic infrastructure and thereby alter expectations about general economic development and thus the economic returns to human resource and other investments. It is hard to know a priori in which direction this effect is likely to work since reasonable expectations may be for an initial deterioration in economic infrastructure due to short-run fiscal stringency but for eventual improvements in such infrastructure relative to what it would have been without the macro adjustment policy if the adjustment policy in facts succeeds in longer-run economic development-related goals. In the longer run the adjustment policy can have similar indirect price and income effects on the demand for human resources and other investments, depending crucially on the degree of success of the adjustment policy.

24 For evidence that the poorer tend to be more price response than the better off in developing countries with regard to nutrition and health related expenditures, see the recent surveys or studies by Alderman (1986), Behrman and Deolalikar (1989c), Gertler, Locay and Sanderson (1987), and Gertler and van der Gaag (1988a,b).
Subsection 2.3 Assessing Empirical Links between Macro Policy and the Meso Setting for the Determination of Rural Poverty

The assessments of such links is difficult. This is so for at least six reasons. First, a number of the effects of macro policy on the meso setting described in the previous subsection work their way through the complexities of the overall economy in order to affect factor, product and credit markets. Second, some of the effects work through altering expectations about returns to human resource investments, and such expectations usually are not known well by policy makers and analysts. Third, there is a time dimension to the effects, with substantial differences and possibly even reversals in effects over time. Fourth, some of the important changes in the meso setting may be quality changes rather than quantity changes, which usually are not observed very well empirically. Fifth, the whole evaluation presumably should be in comparison with what would have occurred without a particular set of macro policies, not in comparison with some ideal or unsustainable situation. Sixth, for most, if not all of the seven EMC studies, previously existing analytical studies and tools, such as applicable economy-wide models, are limited or nonexistent or require resources beyond those of the project to use to investigate the questions of interest.

Nevertheless, the issues are important and therefore it is desirable to proceed as effectively as we can with analysis of the relations between macro policy and the meso setting for the determination of rural households’ command over resources.

A logical starting point might seem to be an evaluation of the impact of macro policies on the major economic aggregates: inflation, employment, unemployment, real income, exports, imports, the real exchange rate, the terms of trade between agriculture and manufacturing, interest rates, real wage rates, the terms of trade between tradeables and nontradeables, real governmental expenditures and deficits, real formal sector credit availability. This may be logical starting point because it would seem that only if there is evidence that there are some effects is there any possibility that there may be effects on the meso setting for the determination poor rural households' command over resources. Such an evaluation requires an economy-wide perspective and the capacity to control for the counterfactual situation regarding what would have happened with different macro policies. If the country experienced a commodity boom or bust with regard to its major primary commodity exports at the same time that it was attempting to undertake a macro adjustment policy program, for example, it would be misleading to look at the macro developments without controlling for changed world commodity markets.

Such an evaluation of the impact of macro policy over time can be

25 However, this is not a necessary step for the analysis below. Instead one could go directly to reduced-form estimates of the impact of macro policies on the meso market and infrastructure variables for the rural poor.
facilitated enormously if there exists usable and sensible economy-wide models that incorporate all or most of the explicit policy changes that are part of the macro policy package, other primary sources of macro economic shocks (e.g., changes in the international terms of trade, weather conditions), and endogenous determination of the major macro outcomes of relevance. With such tools, counterfactual experiments can be conducted to evaluate the impact of macro policy on the major macro aggregates. The desired characteristics of such models, of course, depend very much on the exact characteristics of each particular DMC since the DMCs differ in many important respects some of which are suggested by the discussion at the start of Sections 1.1 and 1.2. The availability of such tools for any of the seven DMC studies in this project is extremely unlikely, particularly given the short time horizon of the project.

In the absence of such tools, a second-best approach may be to examine time series for indicators of the major macro policies, of the other possibly-important macro shocks, and of the major macro aggregates. The relevant questions to ask are, first, are there significant deviations in the major macro aggregates from their underlying secular trends and second, if so, do they appear to be in a pattern that suggests that they were caused by the deviations in the macro policies instead of by the other macro shocks. Simple regressions of the major macro outcome variables (or of their logarithms) on time indicators and on indicators of major macro policy variables and on indicators of major macro shocks may help to evaluate the impact of explicit macro policies on the macro outcomes. Such a procedure permits the separation of the impact of the macro policies from other shocks and from ongoing trends. Therefore it lessens the possibility of misinterpreting, for example, any ongoing deterioration due to the previous situation that called for a macro adjustment program as being due to the adjustment program. It also lessens the possibility of misattributing an impact to a macro policy change if there is a one-year change in the reported value of some relevant macro outcome from the period immediately before the policy change to the first period after the change by incorporating information about a longer time period.27

26 I am assuming here, in the terminology of Nelson and Plosser (1982), that trends are "trend stationary" so that the long-run trends are deterministic, not "difference stationary" so that it is stochastic. For evidence supporting this assumption for one developing country, see Hill (1990).

27 Such errors are likely not to be uncommon in the conditions prior to macro adjustment programs, particularly if they involved considerable inflation, relative price changes, and efforts by the government to play down the extent of the economic crisis. For examples in which deviations from longer-run trends indicate much different patterns of what happened during a structural adjustment effort than just examining the change from the year before to the first year of the adjustment effort in an explicit case, see Behrman and Deolalikar (1990c, 1991) or compare the underlying studies that are compared therein from Behrman.
Such regression estimates basically are simple reduced-form estimates under the assumption that the macro policy and macro shock indicators can be treated as exogenous. While such a procedure is likely to be much more systematic and satisfactory than frequent efforts to evaluate the impact of macro policies basically by merely selectively eyeballing the available data, such a strategy of course has its limitations. Such reduced forms do not give very definite indications of how the macro policies affect the macro outcomes, only that there is or is not some associations. Moreover, true associations may be difficult to discern because of the crudeness of the macro indicators that probably are available and because of possible lags in the in the effects of policies and of macro shocks. Finally, such a procedure does not eliminate the possibility that any associations between the indicators of macro policies and of macro outcomes reflects that both responded to some unobserved third variable (e.g., expectations regarding future developments in key international markets) rather than the changed macro policy causing the changed macro outcome. In other words, the macro policy variables perhaps should be treated as endogenously determined since such policies have been adopted in response to the previous macro situation. This presents a real difficulty for the suggested procedure, as well as for most alternatives, since there are not likely to be available many variables that clearly are exogenous to the determination of such macro policies (though may be some in the form of previous values of shocks from international markets and from the weather). Given this problem, the best procedure may be to see how sensitive the estimates are to different assumptions about the set of instruments that are used to treat such policies as endogenous, including in the broader definition of the set of such instruments past macro characteristics as, for example, in Corzo and Rojas (1990) despite the possible problem of such past outcomes being correlated with current stochastic terms due to serial correlation in unobserved variables.

Despite such limitations, in many contexts looking at such reduced-form regressions is a cost-effective way to evaluate the macro context and to avoid errors that easily can occur from selective eyeballing of the data or from proceeding on the basis of a priori suppositions.\textsuperscript{28}

Now I turn to the question of the impact of macro policies on the meso variables that establish the market and infrastructural context in which the command over resources of poor rural households is determined. To evaluate the impact of macro policies on these meso variables, ideally one would use an economy-wide model of the relevant DMC that includes the explicit details of the macro policies and controls for other shocks, that determines endogenously the meso variables of interest, and that includes all of the special features of that DMC in respects that are discussed above. In the best of all cases such models may be available to determine some of the variables of interest. For


\textsuperscript{28}For examples of the problems with the latter approach, once again, see the references in the previous note.
example, there are some models such as those for Korea in de Melo, Dervis and Robinson (1982) and Adelman and Robinson (1988) that generate some of the important variables regarding income distribution and factor and product markets. If such models are available, they could be used to estimate the impact of macro policies on as many as possible of the variables in Table 2.3-1. But in the best of all cases such models that are currently available do not permit estimation of the impact on rural poverty of macro policies on all of the variables in Table 2.3-1.\textsuperscript{29} Moreover, in most cases such models are not readily available at all. Since the construction of such models or the adaptation of existing ones is likely to require resources far beyond those available for the present project, alternative approaches generally are required to estimate the impact of macro policies on the relevant meso variables.

Given the data and empirical models likely to be available for most of the seven DMCs in the project and the resources available for each of these country studies, it probably is most sensible to adopt a reduced-form approach to the analysis of the determinants of the meso variables. In this approach, a set of regressions should be estimated from time series data in which the dependent variables are the meso variables that are most important from the perspective of the determinants of rural poverty and the right-side variables are indicators of macro policies (once again, with exploration of the robustness of the estimates to alternative assumptions regarding the endogeneity of these policies and what is the set of statistical instruments) and of macro shocks, as well as time trends. Ideally these reduced-form relations should include interactions among the macro variables since, for example, the impact of currency devaluation may depend upon the nature of regulations on activities such as currency movements and capacity expansion. If these indeed are reduced-form relations, in principle the right-side variables should be the same in each -- all of the indicators of macro policy variables and of macro shocks and time trends. This might not be possible because of limited degrees of freedom. In such a case, there are several options. For example, one possibility would be to summarize the information in the right-side variables through their principal components. While this might be useful for prediction, however, it will not be very helpful in sorting out the impact of particular macro policies on the meso variables of interest. A second approach would be to limit the right-side variables to those that on a priori grounds seem most relevant for each dependent variable. This approach is widely used. But it has some limitations. On a priori grounds it is not possible to know with confidence which right-side variables in fact are most important within the complex simultaneous economic system that makes up the relevant economies. And since in most cases policies are somewhat correlated (whether consciously or because they are responding to similar events), a priori restricting the impact of some policies on

\textsuperscript{29}Some of these variables are considered in much more detail in other project papers. For example, Evenson (1990) considers rural institutions including those related to social services, Otsuka (1990) considers rural land markets, and Siamwalla (1990) considers rural credit markets.
a certain outcome to be zero runs the risk that the impact of those policies will be represented by correlated policies in the estimates; as a result the estimated impact of the latter policies will be biased and that of the former policies will be missed by a priori restrictions. Nevertheless, some such approach probably will have to be taken for some of the country studies. If so, it will be important that the analyst explore the extent of the correlation among the included and excluded observed macro policy and macro shock indicators. Such exploration might help to lead to more judicious selection of which variables are included on the right side and therefore lessen biases in the estimated coefficients of those variables that are included.
Table 2.3-1. Suggestive List of Meso Variables for Analysis of Impact of Macro Policies on Rural Poverty

1. MARKETS

1.1 Factors
   1.1.1 Labor
      1.1.1.a Wage rates (low-skilled; higher-skilled as bases for expected returns to education; medical personnel, teachers, trainers; by sex, region, experience) for both rural and urban areas (since the latter may be important in migration decisions).
      1.1.1.b Employment/Unemployment by skill
   1.1.2 Nonlabor
      1.1.1.a Inputs for small-scale own-farms and other enterprises (prices and availabilities)
      1.1.1.b Inputs for human resource investment supply side (prices and availabilities)

1.2 Products
   1.2.1 Major products of farms and other rural enterprises -- prices and quantities
   1.2.2 Major consumption items
      1.2.2.a Staple and other food prices
      1.2.2.b Nonfood prices (e.g., clothing, housing, health inputs)
   1.2.3 Prices and availabilities of human resource services

1.3 Financial
   1.3.1 Formal: interest rates, terms, availabilities
   1.3.2 Informal: interest rates, terms, availabilities

2. INFRASTRUCTURE

2.1 Social
   2.1.1 Education
      2.1.1.a Schooling: quantity and quality (e.g., teachers/student, education of teachers, books and other teaching materials per student)
      2.1.1.b Training: quantity and quality
   2.1.2 Health: quantity and quality of health services
   2.1.3 Nutrition: nature of nutrition programs
   2.1.4 Transfer programs

2.2 Economic -- current and longer-run expenditures and staff
   2.2.1 Transportation
   2.2.2 Communication
   2.2.3 Employment related
   2.2.4 Extension (agricultural, other)
Section 3. Meso-Micro Analysis of the Impact of Macro Policies on Rural Poverty

Section 2 considers the nature of relations between macro policies and the meso variables that determine the context in which rural households and production entities operate. Some suggestions are made about the possible nature of these relations, but ultimately many of the issues are empirical ones about which of several effects dominates and what are the net magnitudes. There are not likely to be uniform answers to these questions across the DMCs, moreover, because of the considerable differences across the countries that are discussed at the start of Sections 2.1 and 2.2.1. Devaluation and trade liberalization, for example, may increase the demand for rural products and thereby tend to increase the returns to the labor time of rural smallholders and landless. At the same time, it may increase the prices that these rural poor face for basic staples, which works in the opposite direction. But if much of the rural poor lives in subsistence or near subsistence households, neither effect may be very strong. To understand the impact of macro policies on rural poverty, therefore, one has to go beyond the macro-meso links to consider the effects on micro behavior in rural areas, within the context of a particular DMC.

In this section I consider the meso-micro relations that affect directly the command over resources of poor rural households on a general level. For each particular DMC, of course, analysts will have to modify these considerations to reflect the particular institutions of that country.

At the micro level, as suggested at the start of Section 2, the command over resources of rural households depends on the assets of the household broadly defined, the prices of the services and sales of those assets, net transfers received by household, and the prices broadly defined that the household faces for the goods and services that the household consumes or uses in production or for investments. Therefore, to analyze the impact of macro policies, through the conduits of the meso variables, on the command over resources of poor rural households, it is useful to focus on the determinants of the assets broadly-defined under the control of poor rural households, the prices broadly-defined faced by poor rural households, and net transfers received by such households. But to analyze both the determinant of such assets, prices, and transfers it is useful first to develop a conceptual framework within which to consider rural households.

Section 3.1 Conceptualization of Rural Households -- the Farm-Household Model

The standard economic conceptualization of household behavior includes a set of allocation rules, household production functions, budget constraints, predetermined assets of the household, and exogenous markets and infrastructure. An example of an allocation rule would be to maximize the satisfaction of household preferences or to engage in bargaining among household members to determine allocation of resources
and of time uses among them. An example of a household production function would be that the health of a child is "produced" by the food, water, and health care that the child receives, the child's genetic endowments, the household and community environments, and the health-care skills that the child's mother has (reflecting both her formal education and habits and knowledge that she has acquired over time) and the time that she devotes to health care of the child. The budget constraint is a "full income" constraint that indicates that the total available household resources (including the time of household members, as well as physical and financial resources and transfers to the household) must equal or exceed the total use by the household of such resources (purchases at market prices, time uses including those related to human resource investments and to economic activities and household production and leisure, and transfers from the household). The predetermined assets of the household include physical and financial assets and human resource assets, which in turn reflect previous human resource investments and usually unobserved endowments due to factors such as genetics and childhood environment of current adults.

Application of the relevant resource allocation rule subject to the household's asset and the prices that the household faces leads to reduced-form demand relations for each of the variables determined by the household, including the time uses of all household members. The right-side variables in these relations are the variables that are given (or predetermined or exogenous) from the point of view of the household: assets, prices and infrastructure.\(^{31,32}\)

\(^{30}\)Identification of bargaining models from models with unified preference levels that are maximized is difficult because many of the variables that often are presumed to be associated with bargaining strength (e.g., wage rates, schooling levels, labor income, nonlabor income) a priori may be associated with unobserved productivity determinants and therefore the price or opportunity costs of time. For two recent studies that attempt to deal with some of these issues, see Schultz (1990) and Thomas (1990).

\(^{31}\)This relation is for the \(j\)th outcome determined by the household for the \(i\)th individual in the \(f\)th family in the \(h\)th household in the \(t\)th time period. To avoid a plethora of subscripts, I do not indicate all of the subscripts.

\(^{32}\)T.N. Srinivasan has pointed out that if a household faces rationing in some market (e.g., rationing of jobs in the labor market), there may be important implications for the reduced-form demand relations (e.g., some switching regimes as one moves from rationed to nonrationed states). If such considerations are important, to capture well dimensions of household behavior may require the specification of a structural model that incorporates the rationing and its implication. This raises the question of just how important rationing is for the rural poor in the DMCs. My impression is that in the sort of markets in which they deal rationing is not so important. In any case, the specification and estimation of structural household models is likely to
where \( Z_{ij} \) is the \( j \)th outcome determined by the household affecting the \( i \)th individual in the household (most important examples of which for this paper are the time and other resources uses of various individuals); \( A \) is a vector of all of the predetermined assets of the household for the period of relevance (physical, financial, human resources, genetic and other endowments); \( P \) is a vector of all the relevant product and factor market prices that the household faces; and \( I \) is a vector of all of the relevant infrastructure that the household faces. The meso determinants of household behavior and of household command over resources are included in the vectors \( P \) and \( I \). Therefore estimation of the parameters in relation (1) can be useful in determining the impact of macro economic policies, through the meso determinants in \( P \) and \( I \), on various dimensions of household behavior.

The conventional derivation of household demand systems effectively is embedded in relation (1), with the added assumption that the income generation decision can be separated from the household consumption decisions. If such separability holds, the household can be viewed as first maximizing its income and then allocating that income among alternative uses in the manner indicated by the household's allocation rules. However there are reasons to believe that such separability may not hold for many rural households because markets are incomplete or because consumption-own productivity relations are simultaneous due to the impact on productivity of health and nutrition. For such cases the so-called "household-farm" model has been developed. This model is a generalization of that described above. The generalization includes including the farm production functions among the relevant production functions and farm purchases (including those of hired labor) and sales in the full income constraint. This implies that the dependent variables in relation (1) include all household-demand related outcomes and all household-farm production related outcomes and that the left-side variables include all farm-related prices, assets and infrastructure in addition to those for consumption demands. Note that the point of farm-household models regarding the possible inseparability of income generation and consumption decisions also may hold for other nonfarm rural households, such as those with rural family commercial

be beyond the scope of the studies that are part of the present project.

\( ^{33} \) Not all of the outcomes determined by the household are individual or even family specific. Variables that are not do not have the \( i \) subscript, but just the family and/or the household subscript.

\( ^{34} \) If there is unemployment, a similar relation may be used to estimate the probability of employment. But see two notes above with respect to the implications for other reduced forms.

\( ^{35} \) See Barnum and Squire (1979), Lau, Lin and Yotopolous (1973), and Singh, Squire and Strauss (1986) for discussion of this model and for references to a number of uses.
enterprises.

The current income of the household includes the sum of the labor earnings of household members (reflecting, in turn, their time worked in such activities times the wages that they obtain per unit time or their marginal productivity in own-farm or other activities) plus their net return on assets plus their net receipt of private and public transfers:

\[(2) \ Y = TW + r_{A_{nh}} + TR,\]

where \(T\) is a vector of the time spent by various household members in various economic activities, \(W\) is a vector of the wage rates obtained by household members in various labor market activities or their marginal productivities in other activities, \(r\) is a vector of returns obtained by the household from the non-human assets \((A_{nh})\) that it owns, and \(TR\) is a vector of net transfers received by the household from all private and governmental sources. Note that while \(A_{nh}\) includes all of the non-human resource assets of the household, \(W\) depends on the human resource assets of the household in so far as such human resources affect labor market wages or marginal labor productivities in other economic activities. Also note that if the components of the first two terms that refer to own-farm activities are a very large share of \(Y\), the household is relatively well insulated from market changes that might be induced by macro policies (such as is the case for subsistence farms). \(TR\) also includes gifts and transfers that are outside of markets and that may serve to insulate households from fluctuations or even some secular changes. There is evidence from some DMCs that there are considerable interhousehold transfers that help to buffer rural households from income fluctuations, even though there is some controversy about the extent to which the motivation for such transfers is altruism versus insurance (e.g., Behrman and Deolalikar 1987b, Ravallion and Dearden 1988, Rosenzweig 1988, Rosenzweig and Stark 1989, and Townsend 1989). The extent to which transfers for insurance purposes occur, however, probably is dependent upon the extent to which a household experiences idiosyncratic shocks (i.e., idiosyncratic relative to the network for such transfers in which it participates). The types of market changes that are induced by macro policies are not likely to be very idiosyncratic, though they well might involve some relative price shifts so that different households in the same socioeconomic network are affected differentially.

Various definitions of current income can be obtained from relation (2) depending on how broadly is defined the scope of the time uses in \(T\). For example, the conventional definition is to include time in the paid labor market and in production of goods and services for the market, but not time in household production in \(T\). But a broader definition of \(T\) in which time in household production is included could be used, as well as a broader one yet in which voluntary leisure also is included (which equals the full income definition if all leisure is voluntary). To the extent that different households choose different amounts of voluntary

\[\text{36The elements in the vector } T \text{ are a subset of time uses included in the } Z_{ij} \text{ indicated in relation (1).}\]
leisure, the extent of income inequality clearly can differ depending on the definition of income that is used. DaVanzo and co-authors provide illustrations that the definition of income used can make considerable difference in measured income inequality in the case of one DMC, Malaysia. However if poverty is of concern, as in the present project, it would seem that the something like the standard definition of income probably is more useful than a broader definition to include other time uses - at least if the concern about poverty is motivated by concern about the command over resources to cover basic health and nutritional needs.

However, to the extent that measured transfers do not capture fully the subsidies that are involved in many social sector programs, the level of income and the changes that occur due to changed social sector policies both may be underestimated. If such items are captured better in consumption or expenditure data, it might be better to utilize such data to represent the command over resources of the poor and to define whether households are below poverty levels. But usually such expenditure data does not capture well all such subsidies, so it may be desirable to consider separately from measured income or expenditure the availability of such services. A different reason for which it may be desirable to utilize expenditure data rather than income data is that permanent, rather than transitory, poverty may be of interest, and households may smooth substantially transitory income fluctuations.³⁷

The basic concern of this project is how do macro policies, through the meso variable conduits, affect the command over resources of poor rural households, as represented by their incomes or their expenditures. To answer this question depends in part on the determination of assets and prices, topics which are discussed in the next two subsections. But it also depends in part on household demand/supply decisions that affect, for example, the time spent in economic activities or the utilization of social sector services. The following procedure could be used to estimate such effects:

1. Obtain data from household surveys and from other sources (including aggregate time series data), that permit estimation of a set of relations of the general form of equation (1) for as many as possible of the outcomes related to rural poverty.

2. Estimate relation (1) from these data for all of the relevant outcomes.

3. Estimate the changes in the right-side meso price and infrastructure variables that are due to particular macro policies for a given duration of those policies by relating the changes in the variables used to estimate the alternative versions of equation

³⁷For evidence for some DMCs (i.e., Thailand, India), see Behrman and Sussangkarn (1990), Deaton (1989), Gaiha and Deolalikar (1989), Paxson (1989), and Wolpin (1982). Glewwe and van der Gaag (1988) also present evidence for another developing country that poverty rankings by expenditures are much different than poverty rankings by income.
(1) to the estimates of the changes in the meso setting induced by the macro policies that are discussed in Section 2.3.

4. Use the following differenced form of the estimated relations of the form of equation (1) and the estimated changes in the right-side meso variables from step 3 to estimate the impact of macro policy changes of a given duration on various outcomes related to the determination of rural poverty:

\[
(3) \; \text{del } Z_{ij} = f(\text{del } P, \text{del } I, A \text{ del } P, I \text{ del } P, A \text{ del } I, P \text{ del } I, \\
\text{del } P \text{ del } I, \ldots),
\]

where del is the difference operator for the relevant duration of the adjustment policy under consideration.

It is useful to emphasize six important features of relations (1) and (3).

First, both relations refer to an outcome for a specific individual, but both include on the right side predetermined characteristics of all individuals in the household. That is, for the determination of the time spent in paid labor market activities by any given household member, the human resources of all household members are included. This is the case because if any of these predetermined human resources were different, the difference would cause a change in total household resources and a reallocation of household resources that in general might affect the time spent in the paid labor market of this particular individual, together with all other outcomes determined by the household. This means that for the exploration of the impact of macro policy changes over a given duration on a number of different dimensions of the determinants of the command over resources of rural households, the right-side variables should be the same even though the outcomes differ.

Second, for similar reasons the prices include all relevant product and factor market prices and the infrastructure variables include all relevant social and economic infrastructure. That is, the prices include not only the direct prices of time spent in the labor market, but all product and factor prices affecting the household. These include the prices of all important consumption products and services items faced by the household. If the household has a family farm or enterprise, moreover, all the relevant product and factor prices for that activity also should be included. Likewise, the infrastructure should include not only the economic infrastructure directly related to income generation, but also the social infrastructure related to human resource investments. Changes in the health infrastructure due to adjustment policy, for example, may affect household resources and resource allocation (including the time spent in income-generating activities) whether or not they affect the health of the individual of concern in a manner that affects his or her economic productivity.

Third, note that income is not included explicitly in either relation. However, income is included implicitly because income primarily is the return on assets (importantly including time) and both the assets and their returns (the latter in the prices) are included.
This treatment avoids the estimation and interpretation problems that would occur if an income measure were included that reflected the endogenous choices of the household, such as the number of hours worked in economic activities. It also allows, in so far as the data allow, the representation of the possibility that the income effects vary depending on who in the household receives such income. For example, some conjecture that the income impact will be greater on children's education if mothers receive such income than if fathers receive such income. If so, an increment in mother's earnings ceteris paribus might be associated with a greater impact on children's schooling than an increment in father's earnings that results in an identical increase in family income.

Fourth, any given estimation is for a given time period. As the time period lengthens, the changes in the right-side variables in equation (3) also differ. The time pattern of such changes presumably depends critically on the time pattern and the success of the macro policy change. If budgetary stringencies cause deterioration in infrastructure and reduce real wages initially, but lead eventually to better infrastructure and higher real wages than would have prevailed without the adjustment policy, then the short- and the longer-run impact of such policy changes must be considered separately.

Fifth, if relation (1) is linear in $P$ and $I$, then only the first two terms in relation (3) are nonzero. The other terms reflect interactions in relation (1). Due to such interactions, initial conditions may matter.

Sixth, estimation of relations of the form of relation (1) inevitably involves some measurement problems that may cause estimation biases. Information may not be available on some variables, which may cause omitted variable biases in the estimated coefficients of other correlated variables. Systematic measurement errors in right-side variables may cause systematic errors in the estimated coefficients of those variables. Random measurement errors in right-side variables tend to cause biases towards zero in estimated coefficients. The limitations of samples to subsamples may cause selection bias if the stochastic term in the selection rule is correlated with the stochastic term in the relation being estimated, as often would seem to be the case a priori. It is far beyond the scope of this paper to discuss in detail all of these possible problems. However it is important that the country analysts in the project be sensitive to such sources of bias and attempt to explore to the extent possible how robust their estimates are.

---

38 For example, systematically representing the effect of schooling by years or grades in school without control for schooling quality is likely to cause an upward bias in the estimated impact of years of schooling since higher schooling quality is likely to induce more years of schooling (e.g., see Behrman and Birdsall 1983, 1985).

39 For such discussions see any standard econometrics text. For a simplified discussion in a related context, see Behrman (1990d).
Section 3.2 Asset Determination and Relation to Meso Variables

Poor rural households have physical, financial and human assets, though any or all of these assets may be quite limited. Taxonomies of such households usually focus on their limited or non-existent access to land by singling out the landless labor households and the smallholder households as the two categories of households that constitute the largest share of the rural poor. Of secondary focus are limited human resources, with the unskilled and those in poor health or disabled often being emphasized. Financial assets usually are presumed to be so limited, in part due to very imperfect financial markets, that they receive little attention in the usual taxonomies of the rural poor. Macro policy changes may have impact on all of these forms of asset holding by the rural poor.

Changes in physical and financial assets held by the poor may occur fairly rapidly due to savings/dissavings decisions that are related to current real income of the poor, which in turn reflect in substantial part real price changes (including the price of unskilled or semi-skilled labor) and the limited availability of credit. For example there is considerable at least anecdotal evidence about farm households decumulating land, livestock and other assets at times of local or more broad economic crisis, and thus to lower their ongoing income prospects and thereby to increase the probabilities of being in ongoing poverty. The reasons for such sales presumably may include a decline in the command over resources or an increase in resource needs together with too little access to credit to tide such households over a transitory bad shock or too little insurance against either such transitory shocks or against more permanent problems. The reduction in the command over resources, in turn, presumably reflects a reduction in income as measured in relation (2) or an increase in the prices of basic commodities consumed by the poor. An increase in resource needs may occur, say, due to demands for health care by sick or disabled family members. The nature and extent of such asset changes may differ substantially among DMCs due to differences in financial and risk sharing/shifting markets and in nonmarket institutions and transfers, as is discussed in Section 2 above.

The question of relevance here is how are the real income, real demand, credit market and insurance market changes that might induce such changes related through meso variables to macro policy changes.

---

40 For two case studies, see Sections 4.4.1 and 4.4.3.

41 Sometimes such sales are referred to as "forced distress sales." T.N. Srinivasan points out, however, that one of the motives of asset accumulation is a precautionary one, which suggests that assets will be decumulated precisely when households face negative shocks. Therefore it is not clear in what useful sense such asset sales are "forced." A distinction might be made between precautionary asset decumulation and accumulation that are expected to average out over time and asset decumulation that lowers the long-run wealth of a household, though empirically it is very difficult to identify which is occurring.
The discussion in Section 2 points to a number of ways in which macro policies might have such effects. For example, restrictive macro policies in the short run might reduce domestic demand and prices for rural products and therefore for unskilled or low-skilled rural labor, reduce the availability of formal credit (and thereby increase the competition for informal credit), and reduce the public provision of health and nutrition related services (and thereby increase the probability of illness and the duration of illness). On the other hand, currency devaluation as part of the same macro adjustment program may increase the real price of products of poor rural labor, though at the same time increase the price of some of their basic staples. Over time, if such an adjustment program is successful, the macro policy change may lead to increased demand for the services of poor rural labor.

To sort out all of these possibilities is an empirical problem since the relative effects may differ in different contexts and most likely will differ with different time horizons. Probably the most effective approach, if data are available, is to estimate relations of the form of relation (1) for such asset changes as dependent on the meso price and infrastructure variables through which the macro policy changes may affect physical and financial asset holdings of poor rural households. While micro household level data would be preferred, the analysis of more aggregate time series data also might be fruitful.

Changes in human resources of poor households also may be affected by income and by prices broadly defined to include not only nominal prices but also the opportunity costs of travel and waiting time. The proximate determinants of these investments presumably include the income and price variables that also determine the other asset changes. But there are some possible differences in degree from the relations that determine the changes in physical and financial assets. One such difference is that a priori one might expect greater effect of meso variables related to the quantity and the quality of public health, education, and nutrition services on the human resource changes than on the physical and financial asset changes. A second such difference is that many of the important human resource investments are in infants and children. Such investments in children may be important factors on which to base judgement regarding whether and to what extent rural households live in poverty even though there is likely to be a substantial lag before such investments have much of an impact on measured poverty. A third such difference is that there is growing emphasis on the critical role of resources under the control of women having greater impact on human resource investments than do those under

---

42See the paper by Siamwalla (1990) for the present project on rural credit markets and rural poverty.

43See Behrman (1989, 1990a,b,d), Behrman and Deolalikar (1988b), and Schultz (1988) for recent surveys of empirical studies of the determinants of such human resource investments in DMCs and other developing countries.
Therefore, to the extent that macro policies may have differential effects on the resources under the control of women versus those under the control of men, as might occur if there is occupational segregation by sex and related relative price changes, it may be important to attempt to separate the impact on the control of resources under the control of women versus those under the control of men. Collier (1990) claims, for example, that women tend to be concentrated more in nontraded activities than are men, so that the macro policy of devaluation is likely to shift resources relatively towards men by favoring traded good production. A fourth such difference is that such decisions may be closely related to fertility and mortality outcomes, thereby changing the numbers of people in poor households.

Though there may be some such differences in degree in the empirical estimates of the impact of macro policies through the meso variables on changes in human resources versus the impact on changes in physical and financial assets, the general estimation strategy is parallel. Relations such as relation (1) need to be estimated for different human resource investments, from household data or from more aggregate data, and such relations used to estimate the impact of various macro policies along the lines indicated in Section 2.

Section 3.3 Price Determination and the Relation to Macro Policies

A number of prices enter importantly into the determination of the real command over resources: prices for the products in the production of which the rural poor are engaged, prices (or wages) for the labor time of rural unskilled and low-skilled labor, and prices for the basic products that are consumed by the rural poor. These prices are reflected in the determination of current nominal income in relation (2), in the prices of products that determination of that nominal income into real income, and in the prices of goods and services broadly-

---

44 See, for example, Behrman (1990d), Behrman and Sussangkarn (1989), Folbre (1984, 1986), Schultz (1990) and Thomas (1990), Thomas, Strauss, and Henriques (1990) and the references therein for some recent studies in DMCs and other developing country contexts. Also see the paper by K. Bardhan (1990) in the present project. But note that if resources under the control of women have differential effects on human resource investments than do resources under the control of men (in the sense, say, of differential marginal investment propensities from the two sources), that means that there also are differential propensities for other uses of these resources in the aggregate, perhaps implying differential propensities for physical and financial investments.

45 His classification of basic food production as nontraded, however, seems critical for the empirical basis for his claim, and it is not clear to me that this is a sensible classification.

46 Assuming that these products in part are sold on markets, which may not be the case for some subsistence farmers.
defined to include infrastructure. Macro policies obviously can have an impact on these prices. For example, import liberalization is likely to increase the terms of trade of agricultural production relative to manufacturing production, devaluation well may do the same, and governmental demand restraint may increase the price of social services by reducing their availability and their quality.

Even if one is skeptical about the relevance of competitive equilibria in some of the relevant markets, the distinction between supply-side and demand-side pressures for price changes may be useful to help to organize one's thoughts on analyzing price determination. In rural labor markets for low-skilled workers, for example, macro policies may work through shifting product demands and relative prices for other production inputs. They also may affect labor supplies by changing the options to working in such markets for such labor, including among such options not only other options in the local rural area, but also migration options.

However, there is a real question regarding whether it is likely to sensible to try to model the structural supply-side and demand-side relations within the resources of the project (though if others have done so it might well be desirable to build upon their efforts). Instead, it may be desirable to estimate reduced-form relations in which the prices in a particular rural locale depend directly on the indicators of macro policies and macro shocks (including as much detail specific to the local situation -- for example, the local economic infrastructure -- as possible). Care has to be taken in interpreting such reduced-form price relations since some policies may work through both the supply and the demand sides and their impact, thus, even in the perfectly competitive equilibrium case may depend upon the exact location of the supply and the demand curves. Nevertheless this may be the best strategy within the limited resources of the project. For such estimation it would seem that the use of time series data would be the dominant option since there is not likely to be enough variation in regional prices due to differential impact of macro policies to permit interesting estimation.

There is a basic problem with regard to determination of relevant prices that is common to the determination of all of the meso variables of interest, but nevertheless merits emphasis. This problem relates to how to represent the expected and actual longer-run impact of macro policies on prices. Even in the short run price expectations may be critical, particularly in determining investment/savings/dissavings decisions such as those discussed in Subsection 3.2. It is easy to conceive, for example, of the possibility of macro economic adjustment policy packages that have a short-run negative effect on agricultural product prices and thereby on rural wages through reducing domestic demand, but (conditional on some probability of success) have an expected (and perhaps eventually actual) positive impact on agricultural product prices and rural wages through reviving the economy or encouraging exports of agricultural products. Given the available data, it is hard to know how to represent either the expected longer-run effects on prices held in the short run or the actual longer-run effects on prices, though in some cases exploration with lags may lead to some insight.

If there is not a way to represent such prices, then it is
important to realize this limitation and to speculate in as informed a manner as is possible about the implications. If investment decisions are made on the bases of comparisons of expected returns (and therefore in part on the basis of expected agricultural product prices), for example, and the impact of certain macro policies is to reduce observed current agricultural product prices but to increase unobserved expected agricultural product prices, the interpretation of the coefficients in the estimated investment relations must be sensitive to the fact that the estimated coefficient of the current agricultural product price is representing both the current and the (possibly opposing) expected effect. Likewise in such a case it would be desirable to at least speculate on the possible longer-run agricultural product price effects rather than only discuss the short-run effects. To only discuss the short-run effects clearly might misrepresent substantially (in direction, not only in magnitude) the impact of particular macro policies on rural poverty.

Section 3.4 Transfers and Macro Policies

The last term in relation (2) refers to net transfers received by households. In principle, such transfers may be from governmental or private sources. In fact governmental income transfers tend to be fairly limited in rural areas of DMCs and most other developing countries, though there may be some important subsidies that poor households receive through subsidized prices (e.g., social services).

However, that does not mean that income transfers are irrelevant. To the contrary, there is growing evidence of fairly large private transfers in the rural areas of several of the DMCs, as well as other developing countries. Recently there has been more analytical analyses of these transfers, though there remains some ambiguity regarding the question of whether the motivation for such transfers is altruism or insurance.\(^7\) In either case, if one household suffers a short-run income shortfall, such transfers may help it to cope with this event in the absence of credit and insurance without suffering catastrophic loses.

But the question remains to what extent are households potentially involved in such transfers likely to be hit by correlated shocks. The more correlated are such shocks, the less likely is the flow of transfers to mitigate the severe hardship of poor rural households hit by, say, bad weather. Perhaps for that reason many of the observed private transfers in which rural households are involved are across space in rural areas or with urban areas. Such arrangements tend to reduce the probability of correlated shocks, and thus mean that private transfers provide a better safety net for the rural poor.

But it seems that many macro policies, to the extent that they have a negative impact on some poor rural households, are likely to have correlated effects on many other rural and urban households in the same

economy. For example, if such policies result in generally depressed domestic demand as the initial part of an adjustment program, it would not be surprising if many households throughout the economy were affected negatively by the depressed aggregate demand. In such a case, the probability that private transfers would mitigate much of the hardship experienced by poor rural households would seem small.

Of course there are some macro policies that are likely to change relative prices, and thus have differential effects across different types of households. For example, liberalization of trade regimes or devaluation are likely to affect relative prices substantially (e.g., see Section 4.1). To the extent that such policies result in negative shocks and hardships for some poor rural households but possibly even positive shocks for other households in the same transfer network (but presumably earning income from different products the relative price of which moves positively), there may be important scope for private transfers to play a important mitigating role for the former households.

It is difficult to know how much data are likely to be available for examination of such possible roles of private transfers in the seven DMC studies of the project. But because of the possible importance of transfers for macro policies that have relative price (and therefore income) effects, it would be desirable to be sensitive to the question of how correlated are income shocks and whether data are available with which to assess the importance of private transfers in mitigating the negative effects of such shocks.

Section 3.5 Other Outcomes Related to Rural Poverty That May Reflect Macro Policies

In the previous three subsections I consider how the effect of macro policies on rural poverty might be investigated for poor rural households by considering the effects on the assets of those households, the prices that they face, and the net transfers that they receive. However, this analysis assumes the existence of a given set of poor rural households. But the set of rural households may be changed due to macro policies in at least two major respects.

First, there is the possibility of changing the distribution of a given set of individuals among households through the dissolution of existing households or the formation of new ones. Such changes may have important implications for poverty. Though I am not aware of evidence for DMCs or other developing countries, conventional wisdom for the U.S. is that women and their children often move into poverty status due to the dissolution of a marriage or a common law union. There also is some suggestion that such dissolutions are affected by economic conditions. Even though the reported dissolution rates of marriages are much lower in the DMCs than in the industrialized countries, it is possible that in the DMCs marital dissolution rates are affected by macro economic policies and, in cases in which marital dissolution occurs, there may be a fairly high probability of increased poverty. I am unaware of studies of such a phenomenon, though they would be straightforward if the right data were available. However I expect that the necessary data are not likely to be available for many of the seven DMC studies in the present project.
Second, there is the possibility of changing rural poverty through migration. If a very poor rural household migrates to an urban area, for example, measured rural poverty may decline though total poverty may not. Usual analyses of migration focus on a comparison of the expected benefits in a number of possible destinations with those in the initial origin in which an individual or a household finds itself, given costs of migration. Macro policies a priori would seem to change those expected relative benefits to the extent that they changed relative wages by changing relative prices associated with products in which different regions or urban concentrations have different comparative advantages. Examples of such possibilities are easy to find. For instance, liberalization of trade regimes that had provided relative protection for manufacturing or devaluation may lead to an increase in the relative price of agricultural goods and therefore in expected relative agricultural wages and returns. As a result, rural-urban migration may be slowed down or reversed, with implications for the rural labor supply and therefore for rural wages. There exist many studies of migration determinants in DMCs and other developing countries that seem consistent with the comparison of the expected benefits story (e.g., Ashakul 1989). For countries for which such studies exist it may be relatively easy to integrate the estimated relations with estimates of the impact of macro policy changes on regional wages (as is discussed in Section 3.3) in order to estimate the magnitude of the induced changes in the migratory flows. Once again, as emphasized several times above, it will be important to be sensitive to the duration for which a particular macro policy has been in effect in any evaluation of its impact.
Section 4. Selected Analyses of the Impact of Macro Stabilization and Structural Adjustment Policies on the Rural Poor

Sections 2 and 3 consider the nature of relations between macro policies and the meso variables that determine the context in which micro rural households and production entities operate. Some suggestions are made about the possible nature of these relations, but ultimately most of the issues are empirical ones about which of several effects dominates and what are the net magnitudes, particularly because of the substantial variations across DMCs with reference to characteristics such as the extent of market development and current regulation to which reference also is made in Sections 2 and 3. Devaluation and trade liberalization, for example, may increase the domestic demand for rural products (particularly exportables) and thereby tend to increase the returns to the labor time of rural smallholders and landless. At the same time, it may increase the prices that these rural poor face for basic staples, which works in the opposite direction. Both effects may be lessened, however, the greater is the extent of any autarkic or almost autarkic subsistence economy. To understand the impact of macro policies on rural poverty, therefore, one has put some empirical flesh on the analytical skeleton, and this analytical flesh must reflect the empirical realities of the particular DMC of interest in a particular country study.

But the assessment of the impact of macro adjustment policies on the rural poor is difficult for at least seven reasons, most of which are suggested by the discussion of the analytical framework in Sections 2 and 3. First, a number of the effects of macro adjustment policy on the meso setting do not only have direct impact but also work their way indirectly through the complexities of the overall economy in order to affect factor, product, financial and risk sharing/shifting markets and economic and social infrastructure. And these indirect effects may be considerable. Second, household behavior can mitigate many of the effects by reallocation of household resources (particularly time of household members) at a point of time, among households, and over time. Such mitigation within the household can be reinforced, moreover, by exchange, gift, and other nonmarket arrangements across households and often through other institutions. Third, some of the effects work through altering expectations about returns to physical capital and human resource investments, and such expectations usually are not known well by policy makers and analysts. But, nevertheless, the credibility of macro policies and thus the expectations to which they lead may be critical in their degree of eventual success. Fourth, there is a time dimension to the effects, with substantial differences and possibly even reversals in effects over time. Fifth, some of the important changes in the meso setting may be quality changes rather than quantity changes, which usually are not observed very well empirically. Sixth, the whole evaluation presumably should be in comparison with what would have occurred without a particular set of macro policies, not in comparison with some ideal or unsustainable situation. Seventh, for most DMCs and other developing countries, existing analytical studies and tools, such as applicable economy-wide models, are likely to be limited or nonexistent or too costly to use for the present project.
For these reasons, the available empirical evidence is limited and needs to be qualified substantially. Also it may be specific in many cases to particular institutional settings, regional contexts, or international market involvement. I outline in Sections 2 and 3 reduced-form approaches that may be helpful to explore the impact of macro policies on the rural poor in particular DMCs as part of the project of which this paper is a part. But there also are some other approaches that may be useful and recent studies that may provide promising models for exploring some issues related to the impact of macro policies on the DMCs. For such reasons, in this section I survey selected empirical studies that focus on some particular dimensions of the nature of the relation between macro adjustment policies and the rural poor in DMCs and other developing countries. Section 4.1 considers the direct and indirect effects of adjustment policies on agricultural incentives (at least in the form of product prices) in developing countries based on cross-country evidence for both some DMCs and some other developing countries. Section 4.2 turns to the response of agricultural supplies to such policies and to other policies, again based on cross-country evidence. Section 4.3 summarizes cross-country evidence on the impact of structural adjustment programs on labor markets and on the social sectors. Section 4.4 presents three country case studies for three very different country experiences of adjustment in the 1980s, one of which is a DMC. The first focuses on the considerable rural poverty reduction during adjustment in Indonesia. The second examines changes in the social sectors in Jamaica during stabilization and the initial stages of an adjustment program. The third considers the apparent deterioration in rural poverty during adjustment in Cote d'Ivoire.

Section 4.1 Agricultural Incentives in Developing Countries -- The Effects of Sectoral and Economywide Policies

Krueger, Schiff and Valdes (1988) summarize some of the preliminary results of the World Bank comparative study of the political economy of agricultural pricing studies. They distinguish between sector-specific (direct) and economy-wide (indirect) policies in their investigation of the policy impact on agricultural incentives for 18 developing countries for the 1975-1984 period, about a third of which are DMCs. They measure the direct effect by the proportional difference between the producer price and the border price (adjusting for distribution, storage, transport, and other marketing costs). The indirect effect has two components: (1) The impact of the sustainable portion of the current account deficit and of industrial protection policies on the real exchange rate and thus on the price of agricultural products relative to nonagricultural nontradeables. (2) The impact of industrial protection policies on the relative price of agricultural products to that of nonagricultural tradable products.

Table 4.1-1 presents estimates of the degree of nominal direct, indirect and total intervention for representative export crops for the 13 countries.

The direct intervention numbers indicate the estimated percentage by which domestic producer prices diverged from those that would have
prevailed in a well-functioning market with free trade (given the actual exchange rate and the degree of industrial protection). This measure is equivalent to the rate of nominal protection. The first column of this table indicates that most countries adopted direct policies that resulted in the equivalent of export taxes, though there were some exceptions among non DMCs developing countries such as Ghana, Portugal, Zambia, Chile and Turkey in 1975-79.

The indirect effects in this table include both the effects of trade and macroeconomic policies on the real exchange rate and the extent of protection for nonagricultural commodities. The indirect effects on agricultural incentives to agricultural producers generally were larger than the direct effects -- Krueger, Schiff, and Valdes suggest about two and a half times as large as the direct effects. For most countries, moreover, the effective taxation on agricultural products through indirect policies exacerbated the negative direct effects, for many countries resulting in very large total negative protection equivalents. Producer prices were half or less of the nonintervention prices in Cote d'Ivoire, Egypt, Pakistan, and Sri Lanka in 1975-79 and in Argentina, the Dominican Republic, Ghana, the Philippines, Sri Lanka, Turkey, and Zambia in 1980-84.

The average levels of total nominal protection did not change much between 1975-9 (-36 per cent) and 1980-4 (-40 per cent). Though there were considerable variations among countries, there was some tendency for unfavorable indirect changes to be offset by favorable direct changes. The estimates for both periods point to the substantial degree of discrimination against agricultural products in developing countries, even in DMCs such as Malaysia and Thailand with substantial agricultural exports during the sample period. That there was not a reduction in the negative nominal protection for agricultural exportables between the two periods is somewhat surprising given that several countries in the study initiated structural adjustment efforts in the first half of the 1980s.

Table 4.2-2 presents similar estimates for import-competing agricultural products for about the same countries (though with Argentina and Thailand excluded because they have no significant import-competing crops and with Korea added). Note that, in contrast to the discrimination against export products, there tended to be strong direct protection of import-competing crops. However, by definition the indirect effects are the same (and generally negative) for import-competing as for exportable agricultural products. This indirect effect in many cases offset the positive direct effects. Therefore on average the total protection for these import-competing agricultural products was -5 per cent (though about three or four times as large in absolute terms if Korea and Malaysia are excluded from the averages).

In most countries a major stated reason for agricultural policies is to stabilize domestic prices in light of perceived substantial fluctuations in international markets. Krueger, Schiff, and Valdes ask to what extent policies in the developing countries resulted in more

---

48 Krueger, Schiff, and Valdes claim that these are lower bounds because relatively large supply elasticities were used in the underlying calculations.
Table 4.1-1  Direct, Indirect, and Total Nominal Protection Rates for Exported Products (%)

<table>
<thead>
<tr>
<th>Country--Product</th>
<th>1975-79</th>
<th>1980-84</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td><strong>DMC Countries:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia, Rubber</td>
<td>-25</td>
<td>-4</td>
</tr>
<tr>
<td>Pakistan, Cotton</td>
<td>-12</td>
<td>-48</td>
</tr>
<tr>
<td>Philippines, Copra</td>
<td>-11</td>
<td>-27</td>
</tr>
<tr>
<td>Sri Lanka, Rubber</td>
<td>-29</td>
<td>-35</td>
</tr>
<tr>
<td>Thailand, Rice</td>
<td>-28</td>
<td>-15</td>
</tr>
<tr>
<td><strong>Other Developing Countries:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina, Wheat</td>
<td>-25</td>
<td>-16</td>
</tr>
<tr>
<td>Brazil, Soybeans</td>
<td>-8</td>
<td>-32</td>
</tr>
<tr>
<td>Chile, Grapes</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Colombia, Coffee</td>
<td>-7</td>
<td>-25</td>
</tr>
<tr>
<td>Cote d'Ivoire, Cocoa</td>
<td>-31</td>
<td>-33</td>
</tr>
<tr>
<td>Egypt, Cotton</td>
<td>-36</td>
<td>-13</td>
</tr>
<tr>
<td>Ghana, Cocoa</td>
<td>26</td>
<td>-66</td>
</tr>
<tr>
<td>Portugal, Tomatoes</td>
<td>17</td>
<td>-5</td>
</tr>
<tr>
<td>Turkey, Tobacco</td>
<td>2</td>
<td>-40</td>
</tr>
<tr>
<td>Zambia, Tobacco</td>
<td>1</td>
<td>-42</td>
</tr>
<tr>
<td><strong>Average for all countries</strong></td>
<td>-11</td>
<td>-25</td>
</tr>
</tbody>
</table>

Note: Korea and Morocco are not included because all main agricultural products are imported.

The direct nominal protection rate is defined as the difference between the total and the indirect nominal protection rates, or equivalently, as the ratio of (1) the difference between the relative producer price and the relative border price, and (2) the relative adjusted border price measured at the equilibrium exchange rate and in the absence of all trade policies.
Table 4.1-2 Direct, Indirect and Total Protection Rates for Imported Food Products (%)

<table>
<thead>
<tr>
<th>Country -- Product</th>
<th>Direct</th>
<th>Indirect</th>
<th>Total</th>
<th>Direct</th>
<th>Indirect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DMC Countries:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea, Rice</td>
<td>91</td>
<td>-18</td>
<td>73</td>
<td>86</td>
<td>-12</td>
<td>74</td>
</tr>
<tr>
<td>Malaysia, Rice</td>
<td>38</td>
<td>-4</td>
<td>34</td>
<td>68</td>
<td>-10</td>
<td>58</td>
</tr>
<tr>
<td>Pakistan, Wheat</td>
<td>-13</td>
<td>-48</td>
<td>-61</td>
<td>-21</td>
<td>-35</td>
<td>-56</td>
</tr>
<tr>
<td>Philippines, Corn</td>
<td>18</td>
<td>-27</td>
<td>-9</td>
<td>26</td>
<td>-28</td>
<td>-2</td>
</tr>
<tr>
<td>Sri Lanka, Rice</td>
<td>18</td>
<td>-35</td>
<td>-17</td>
<td>11</td>
<td>-31</td>
<td>-20</td>
</tr>
<tr>
<td><strong>Other Developing Countries:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil, Wheat</td>
<td>35</td>
<td>-32</td>
<td>3</td>
<td>-7</td>
<td>-14</td>
<td>-21</td>
</tr>
<tr>
<td>Chile, Wheat</td>
<td>11</td>
<td>22</td>
<td>33</td>
<td>9</td>
<td>-7</td>
<td>2</td>
</tr>
<tr>
<td>Colombia, Wheat</td>
<td>5</td>
<td>-25</td>
<td>-20</td>
<td>9</td>
<td>-34</td>
<td>-25</td>
</tr>
<tr>
<td>Cote d'Ivoire, Rice</td>
<td>8</td>
<td>-33</td>
<td>-25</td>
<td>16</td>
<td>-26</td>
<td>-10</td>
</tr>
<tr>
<td>Dominican Rep. Rice</td>
<td>20</td>
<td>-18</td>
<td>2</td>
<td>26</td>
<td>-19</td>
<td>7</td>
</tr>
<tr>
<td>Ghana, Rice</td>
<td>79</td>
<td>-66</td>
<td>13</td>
<td>118</td>
<td>-89</td>
<td>29</td>
</tr>
<tr>
<td>Morocco, Wheat</td>
<td>-7</td>
<td>-12</td>
<td>-19</td>
<td>0</td>
<td>-6</td>
<td>-8</td>
</tr>
<tr>
<td>Portugal, Wheat</td>
<td>15</td>
<td>-5</td>
<td>10</td>
<td>26</td>
<td>-13</td>
<td>13</td>
</tr>
<tr>
<td>Turkey, Wheat</td>
<td>28</td>
<td>-40</td>
<td>-12</td>
<td>-3</td>
<td>-35</td>
<td>-18</td>
</tr>
<tr>
<td>Zambia, Corn</td>
<td>-13</td>
<td>-42</td>
<td>-55</td>
<td>-9</td>
<td>-57</td>
<td>-56</td>
</tr>
<tr>
<td><strong>Average for all countries</strong></td>
<td>20</td>
<td>-25</td>
<td>-5</td>
<td>21</td>
<td>-27</td>
<td>-6</td>
</tr>
</tbody>
</table>

Note: Argentina and Thailand are not included because their main food products are exported.

Turkey was a net exporter of wheat in some years, and in the Dominican Republic rice was not traded in some years.

The direct nominal protection rate is defined as the difference between the total and the indirect nominal protection rates, or equivalently, as the ratio of (1) the difference between the relative producer price and the relative border price, and (2) the relative adjusted border price measured at the equilibrium exchange rate and in the absence of all trade policies.
### Table 4.1-3 Ratio of Standard Deviations of Deflated Producer and Deflated Border Prices, 1960-84

<table>
<thead>
<tr>
<th>Country</th>
<th>Crop</th>
<th>Exports Ratio</th>
<th>Imports Crop</th>
<th>Imports Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DMC Countries:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>None</td>
<td>0.96</td>
<td>Rice</td>
<td>1.58</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Rubber</td>
<td>1.02</td>
<td>Rice</td>
<td>0.47</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Cotton</td>
<td>0.62</td>
<td>Wheat</td>
<td>0.17</td>
</tr>
<tr>
<td>Philippines</td>
<td>Copra</td>
<td>0.94</td>
<td>Corn</td>
<td>0.27</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Rubber</td>
<td>0.44</td>
<td>Rice</td>
<td>0.65</td>
</tr>
<tr>
<td>Thailand</td>
<td>Rice</td>
<td>0.26</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>Other Developing Countries:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>Wheat</td>
<td>0.37</td>
<td>None</td>
<td>0.42</td>
</tr>
<tr>
<td>Brazil</td>
<td>Soybeans</td>
<td>0.80</td>
<td>Wheat</td>
<td>0.73</td>
</tr>
<tr>
<td>Chile</td>
<td>Grapes</td>
<td>0.94</td>
<td>Wheat</td>
<td>0.93</td>
</tr>
<tr>
<td>Colombia</td>
<td>Coffee</td>
<td>0.87</td>
<td>Wheat</td>
<td>1.20</td>
</tr>
<tr>
<td>Cote d'Ivoire</td>
<td>Cocoa</td>
<td>0.42</td>
<td>Rice</td>
<td>0.65</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>Coffee</td>
<td>0.84</td>
<td>Rice</td>
<td>0.30</td>
</tr>
<tr>
<td>Egypt</td>
<td>Cotton</td>
<td>0.42</td>
<td>Wheat</td>
<td>0.63</td>
</tr>
<tr>
<td>Morocco</td>
<td>None</td>
<td>1.13</td>
<td>Wheat</td>
<td>1.00</td>
</tr>
<tr>
<td>Portugal</td>
<td>Tomato</td>
<td>1.16</td>
<td>Wheat</td>
<td>0.56</td>
</tr>
<tr>
<td>Turkey</td>
<td>Tobacco</td>
<td>0.83</td>
<td>Corn</td>
<td>0.75</td>
</tr>
<tr>
<td><strong>Average for all countries</strong></td>
<td></td>
<td><strong>0.73</strong></td>
<td><strong>0.69</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Note: The border price is measured at the official exchange rate. The deflator is the price index of the nonagricultural sector.*

*Sources for Tables 4.1-1,2,3: Krueger, Schiff, and Valdes (1988, Tables 1-3).*
stable prices by calculating the ratios of the standard deviations of deflated producer prices to the standard deviations of deflated border prices for the 1960-84 period for all of the products included in Tables 4.1-1 and 4.1-2 (Table 4.1-3). A value of this ratio less than one means that the domestic producer price was more stable than the border price. On average policies resulted in greater price stability by 27 per cent for exports and by 31 per cent for imports. In terms of the coefficients of variation, these translate into a larger reduction in relative price variability for importables (42 per cent) than for exportables (18 per cent) since the former average much higher prices than the latter due to the structure of protection — a result that Krueger, Schiff, and Valdes suggest is not surprising given the strong consumer interest in price stability of importables in addition to the producer interest in both cases. But Krueger, Schiff, and Valdes also emphasize that this result does not mean that the policies actually used were a first-best way of obtaining greater agricultural price stability. And, at least for potential producers of agricultural exportables, the premium that was paid for the greater price stability in the form of lower relative prices was considerable.

Krueger, Schiff, and Valdes conclude that their most important result is that the impact of the indirect economy-wide policies generally dominates the direct policy effect. They also note the marked difference between the policies for exportables and those for importables, including that for the latter the direct effects tend to be positive. They speculate that the differences between the direct policy treatments of exportables versus importables is due to a combination of a desire for self-sufficiency in terms of basic staples and the use of international trade taxes (or their equivalents) for agriculture because of the difficulties in administering other types of taxes.

What are the implications of these results for evaluating the impact of macro stabilization and adjustment policies on the rural poor in the DMCs and other developing countries? First, the changes in the indirect policies are likely to be potentially as important or more important than the changes in direct policies in affecting agricultural product prices. That is, overall macro policies seem to matter a lot in many contexts, though of course both direct and indirect policies are likely to have less impact the less integrated into the market economy is the rural sector. Second, if adjustment policies were to eliminate all policy-related distortions, overall agricultural prices would tend to rise relatively. Third, the changes in the meso price variables would tend to increase the real income in the agricultural sector because of the relatively large increase in agricultural product prices relative to consumption prices (even though the latter also would tend to increase relative to nonagricultural prices), perhaps reinforced by agricultural supply responses (but see Section 4.2). Fourth, there would be variation in the extent of gains and possible losses among members of the agricultural sector, with the largest gains among those most involved in exportable production. In many, but not all, DMCs this would include a significant proportion of the rural poor. Fifth, greater agricultural product price instability probably would tend to ensue, which would have some welfare costs to producers and to consumers. However, calculations such as those in Newbery and Stiglitz
(1983) suggest that the producer welfare losses due to greater price instability would be much less than the gains due to higher prices at least for exportables (though this is less clear for importables) because of the various ways in which producers diversify their risks.

Section 4.2 The Policy Response of Agriculture

Section 4.1 documents that macro structural adjustment policies might be expected to have large effects, particularly indirect ones, on the meso agricultural product price variables in some DMCs. These changes in themselves, moreover, are likely to lead to increases in the aggregate gross real income of agriculture, and quite possibly in the real income of some of the rural poor. But changes in such meso variables as agricultural prices do not mean that necessarily agricultural production will increase substantially. Binswanger (1989) addresses the question of to what extent does aggregate agriculture respond to policy changes.

Binswanger stresses three points about the evaluation of the aggregate response of agriculture to policy changes.

First, substantial price responses for individual agricultural products should not be interpreted to mean that there is substantial response for aggregate agriculture. Though the former are well-documented, it should be noted that at least in the short and medium run they reflect primarily changes in the composition of the use of relatively fixed agricultural inputs (such as land, labor, and water) and only limited expansion of aggregate production. Table 4.2-1 summarizes available econometric estimates of aggregate agricultural supply responses to prices in DMCs (basically a number of estimates from India) and other (mostly developing, but also the U.S.) countries, with most of the short-run elasticities between 0.05 and 0.25. This means that if there were an elimination of the total negative policy effect on prices of agricultural exportables that are summarized in Table 4.1-1, the resulting short-run increase in exportable agricultural production would tend to be on the order of magnitude of 0.10 or less (and some of this would be at the expense of agricultural importables). The implied short-run supply response would not in itself have an immediate large impact on real agricultural incomes -- in fact on the average it would be about only a fourth as important as the impact of the induced change in agricultural prices if adjustment policies were to eliminate all of the direct and indirect distortions.

Second, in assessing the response of agricultural production to governmental macro policy changes, it is necessary to consider all factors that affect agricultural net revenues, not just product prices. These factors include the prices of inputs, the stock of physical and human resources, and the infrastructure.49 In Binswanger's words: "Econometrically, it is easier to show the effect of infrastructure, services, and human capital than it is to show price effects. Infrastructure, services, and human capital together affect aggregate agricultural output more than prices alone...." (p. 244) Part of his

49See the discussion of relations (1) and (3) in Section 3.1.
supporting evidence for this summary is summarized in Table 4.2-2, which gives estimates for Indian and for cross-country data. Further evidence for the impact of research and credit, respectively, is given in Tables 4.2-3 and 4.2-4.

Third, structural adjustment that eliminates distortions of the types that are summarized in Tables 4.1-1 and 4.1-2 are likely to have substantial short-run effects on agricultural exports, but not very much effect on importables. The impact on agricultural exportables is supported by the work of Balassa (1986), on which Table 4.2-5 is based. Balassa found that the elasticities of the share of exports in output with respect to the real exchange rate are higher than those for over all goods and services, and much higher for the net export share (i.e. exports minus imports) in output for agriculture than for other sectors. But the domestic food supply may not respond very much initially both because of overall aggregate demand reduction and because for many developing countries before structural adjustment importable foods were relatively well protected (Binswanger refers to the direct effects in Table 4.1-2 to support this point, but does not comment on the indirect effects on which Krueger, Schiff, and Valdes place considerable emphasis). The agricultural export expansion effect, therefore, is primarily a composition effect. This point is further reinforced in Binswanger's view by Cleaver's (1988) comparison of recent agricultural performances of countries in sub-Saharan Africa, with and without adjustment programs (Table 4.2-6). These results suggest a slight difference in the growth rates in the early 1980s when adjustment programs were initiated, with this difference increasing later in the decade, but with no difference in the growth of food production per capita. Binswanger also notes that this growth occurred primarily in high-potential areas in terms of agroclimatic potential.

50 A more meaningful comparison, but one that is much harder to undertake, would be with the counterfactual scenario of what would have happened if prestructural adjustment policies were to continue versus what happened with structural adjustment policies in place. Corvo and Rojas (1990) present a recent discussion of methodologies to attempt to evaluate the counterfactual situation with aggregate statistical relations in which there is an attempt to allow for the endogeneity of policies including the choice whether to undertake a World Bank related adjustment program. However their procedure is open to at least three criticisms. First, there are the usual questions about the choice of exogenous instruments to identify the endogenous right-side variables. Second, they assume that past values of variables that are endogenous in the current period are independent of the disturbance terms in their relations, which is equivalent to the unlikely assumption that there is no serial correlation in the disturbance term (e.g., no unobserved fixed effects). Third, as Maasland and van der Gaag (1990) note, they assume that the adjustment program can be summarized by one dichotomous variable, rather than differing degrees of use of a whole set of variables across countries.
Table 4.2-1 Some Econometric Estimates of Aggregate Agricultural Supply Responses to Prices

<table>
<thead>
<tr>
<th>Country or region</th>
<th>Short-run estimate</th>
<th>Long-run estimate</th>
<th>Period</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>0.05-0.1</td>
<td>0.07-1.09</td>
<td>1920-57</td>
<td>Griliches (1960) (aggregate farm supply)</td>
</tr>
<tr>
<td>United States</td>
<td>0.06-0.17</td>
<td>0.10-0.23</td>
<td>1920-57</td>
<td>Griliches (1960) (aggregate crop supply)</td>
</tr>
<tr>
<td>Argentina</td>
<td>0.21-0.35</td>
<td>0.42-0.78</td>
<td>1950-74</td>
<td>Reca (1976)</td>
</tr>
<tr>
<td>Argentina</td>
<td>0.07 n.a.</td>
<td>1913-84</td>
<td></td>
<td>Cavallo (1988)</td>
</tr>
<tr>
<td>India</td>
<td>0.20-0.30</td>
<td>0.30</td>
<td>1952/3-74/5</td>
<td>Krishna (1982)</td>
</tr>
<tr>
<td>India</td>
<td>0.28-0.29</td>
<td>0.28</td>
<td>1954/5-77/8</td>
<td>Chibber (1988a)</td>
</tr>
<tr>
<td>India</td>
<td>0.2 n.a.</td>
<td>1955/6-76/7</td>
<td>1981</td>
<td>Bapna (1981)</td>
</tr>
<tr>
<td>India (Semiarid Tropical)</td>
<td>0.09 n.a.</td>
<td>1955/6-73/4</td>
<td></td>
<td>Bapna et al (1984) a</td>
</tr>
<tr>
<td>India</td>
<td>0.13 n.a.</td>
<td>1961/2-81/2</td>
<td></td>
<td>Binswanger, Khandker, and Rosenzweig (1989)</td>
</tr>
<tr>
<td>Ghana</td>
<td>0.20</td>
<td>0.34</td>
<td>1963-81</td>
<td>Bond (1983) for the following African</td>
</tr>
<tr>
<td>Kenya</td>
<td>0.10</td>
<td>0.16</td>
<td>1963-81</td>
<td>countries</td>
</tr>
<tr>
<td>Cote d'Ivoire</td>
<td>0.13</td>
<td>0.13</td>
<td>1963-81</td>
<td>African average</td>
</tr>
<tr>
<td>Liberia</td>
<td>0.10</td>
<td>0.11</td>
<td>1963-81</td>
<td></td>
</tr>
<tr>
<td>Madagascar</td>
<td>0.10</td>
<td>0.14</td>
<td>1963-81</td>
<td></td>
</tr>
<tr>
<td>Senegal</td>
<td>0.54</td>
<td>0.54</td>
<td>1963-81</td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>0.15</td>
<td>0.15</td>
<td>1963-81</td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>0.05</td>
<td>0.07</td>
<td>1963-81</td>
<td></td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>0.22</td>
<td>0.24</td>
<td>1963-81</td>
<td></td>
</tr>
<tr>
<td>Average for Sub-Saharan Africa</td>
<td>0.18</td>
<td>0.21</td>
<td>1963-81</td>
<td></td>
</tr>
<tr>
<td>Cross-country</td>
<td>0.06</td>
<td>n.a.</td>
<td>1969-78</td>
<td>Binswanger and others (1987) c</td>
</tr>
</tbody>
</table>

a. Uses panel data of districts and within estimators.
b. Eliminates simultaneous equations bias, uses panel data of districts and within estimators.
c. Crop output supply function; uses panel data of countries and within estimators.

n.a. Not available

Source: Binswanger (1989, Table 2).
Table 4.2-2 Estimated Effects of Infrastructure on Agriculture

<table>
<thead>
<tr>
<th></th>
<th>Aggregate crop output</th>
<th>Fertilizer demand</th>
<th>Tractor stock</th>
<th>Draft animal investment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cross-country</td>
<td>Cross-country</td>
<td>Cross-country</td>
<td>India</td>
</tr>
</tbody>
</table>

**Prices**
- Output price: $-0.05^* n.a.$  $-0.02$  n.a.  $0.16^* n.a.$
- International output price: $n.a.$  $0.13^* n.a.$  $0.06 n.a.$  $2.90^*$
- Fertilizer price: $0.00 -0.12^* -0.16 -0.57^* -0.05^* -12.25^*$
- Urban wage: $-0.05^* 0.05 0.15 0.13 -0.04 5.66^*$
- Interest rate: n.a.  $-0.001$  n.a.  $0.03 n.a.$  $-0.59^*$

**Infrastructure**
- Total irrigation: $1.62^* n.a. -0.37 n.a. 7.16^* n.a.$
- Government canal irrigation: $n.a.$  $0.03$  n.a.  $0.06 n.a.$  $-0.20^*$
- Rural road density: $0.12^* 0.20^* 0.18^* 0.22^* 0.34^* -2.12^*$
- Paved roads: $0.26^* n.a. 0.23^* n.a. 1.71^* n.a.$
- Electrification: n.a.  $0.03^* n.a. 0.09^* n.a. 0.71^*$

**Services**
- Regulated markets: n.a.  $0.08^* n.a. 0.41^* n.a. 0.06^* n.a.$
- Commercial banks: n.a.  $0.02^* n.a. 0.25^* n.a. 0.54^* n.a.$
- Extension: $0.02 n.a. 0.19^* n.a. -0.03 n.a.$

**Human Capital**
- Rural population density: $0.12^* n.a. 0.18^* n.a. 0.34^* n.a.$
- Adult literacy rate: $0.54^* n.a. 1.27^* n.a. -0.44 n.a.$
- Primary school: n.a.  $0.33^* n.a. 1.43^* n.a. 3.32^* n.a.$
- Life expectancy: $1.76^* n.a. 2.64^* n.a. 5.49^* n.a.$

**Technical**
- Research: $0.00 n.a. 0.14^* n.a. -0.05 n.a.$
- Rainfall: n.a.  $0.07^* n.a. 1.27 n.a. 1.50 n.a.$

**Miscellaneous**
- GDP/capita: $0.21^* n.a. -0.13 n.a. 0.46^* n.a.$
- No. of observations: 580 1,785 580 1,148 580 304

n.a. Not available.
*Statistical significance at 10 per cent or more.
Statistically significant at 10 per cent in a one-tailed test. Only for
cases where the hypothesis of a coefficient of opposite sign is unreasonable.

'SCoefficients are not in elasticity form: irrigation, paved roads, and adult literacy are ratios expressed as a percentage. The coefficients in the table are given the percentage increase in the dependent variable for a 1 per cent increase in the independent percentage. For example, a 1 per cent estimated increase in the adult literacy rate in India will lead to a 0.54 per cent increase in agricultural output.

"To circumvent simultaneity problems (see appendix to Binswanger 1989 paper), an index of international prices is used as an instrumental variable for domestic prices.

Source: Binswanger (1989, Table 7), as derived from Binswanger, Khandker, and Rosenzweig (1989) and Binswanger, Mundlak, Yang, and Bowers (1987).
Table 4.2-3 Estimated Impact Elasticities of Public Research, Extension, and High-Yield Varieties

<table>
<thead>
<tr>
<th>Product</th>
<th>North Indian wheat</th>
<th>Brazil</th>
<th>Philippines</th>
<th>U.S. Grain Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on product supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>0.31</td>
<td>0.21</td>
<td>-0.32</td>
<td>n.a.</td>
</tr>
<tr>
<td>Rice</td>
<td>-0.08</td>
<td>0.12</td>
<td>0.33</td>
<td>n.a.</td>
</tr>
<tr>
<td>Corn &amp; millet</td>
<td>-0.81</td>
<td>-0.12</td>
<td>0.86</td>
<td>n.a.</td>
</tr>
<tr>
<td>Indust. crops</td>
<td>0.27</td>
<td>-0.09</td>
<td>0.33</td>
<td>0.05</td>
</tr>
<tr>
<td>Export crops</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.74</td>
</tr>
<tr>
<td>Staple roots</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.01</td>
</tr>
<tr>
<td>Beans</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.01</td>
</tr>
<tr>
<td>Animal products</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.07</td>
</tr>
<tr>
<td>Soybeans</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>All products</td>
<td>0.17</td>
<td>0.04</td>
<td>0.16</td>
<td>0.25</td>
</tr>
</tbody>
</table>

n.a. not available

Note: Derived from profit function estimates with multiple inputs and outputs. Total land and farm size are held constant. For studies with cross-section time series, within estimators have been used. Elasticities for all outputs and inputs are the sum of the individual product or input elasticities weighted by their respective shares. For the Philippines, only an aggregate supply function with disaggregated input demands was estimated.

Source: Evenson (1988) and Huffman and Evenson (1989) as presented in Binswanger (1989, Table 9).
Table 4.2-4 Estimated Impact of the Financial System on Indian Agriculture and the Rural Economy

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variables</th>
<th>Predicted overall rural credit advanced</th>
<th>Predicted agri. cooperative credit advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of branches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggregate crop output</td>
<td>0.014*</td>
<td>0.02*</td>
<td>0.01*</td>
</tr>
<tr>
<td>Fertilizer demand</td>
<td>0.25</td>
<td>0.28*</td>
<td>0.06*</td>
</tr>
<tr>
<td>Investment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tractors</td>
<td>0.14*</td>
<td></td>
<td>0.10*</td>
</tr>
<tr>
<td>Pumps</td>
<td>0.38*</td>
<td>0.51*</td>
<td>0.31*</td>
</tr>
<tr>
<td>Draft animals</td>
<td>0.71*</td>
<td>0.62*</td>
<td>0.38*</td>
</tr>
<tr>
<td>Milk animals</td>
<td>0.52*</td>
<td>0.58*</td>
<td>0.19*</td>
</tr>
<tr>
<td>Small stock</td>
<td>-0.16</td>
<td>0.67*</td>
<td>0.29*</td>
</tr>
<tr>
<td>Agricultural employment</td>
<td>-0.07</td>
<td>-0.04</td>
<td>-0.01</td>
</tr>
<tr>
<td>Nonagricultural employment</td>
<td>0.29*</td>
<td>0.13*</td>
<td>0.00</td>
</tr>
<tr>
<td>Rural wage</td>
<td>0.06*</td>
<td>0.04*</td>
<td>0.00</td>
</tr>
</tbody>
</table>

n.a. Not available.

*Statistically significant at 10 per cent or better on two-tail test.

+Statistically significant at 10 per cent or better on one-tail test.

*Cooperative credit includes credit by the Land Development Bank system and the primary agricultural credit societies. In 1980-81, credit outstanding to agriculture for the cooperative system was about two-thirds of total credit outstanding to agriculture and about 42 per cent of total rural credit.

Table 4.2-5 Elasticities of Ratio to Export to Output, 1965-82

<table>
<thead>
<tr>
<th>Exports/output</th>
<th>Elasticity of exports with respect to the real exchange rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Developing countries</td>
</tr>
<tr>
<td>Africa</td>
<td></td>
</tr>
<tr>
<td>Goods and services/total output</td>
<td>0.48</td>
</tr>
<tr>
<td>Merchandise exports/total output</td>
<td>0.77</td>
</tr>
<tr>
<td>Agricultural exports/agricultural output</td>
<td>0.68</td>
</tr>
<tr>
<td>Net agricultural exports/agricultural output</td>
<td>4.96</td>
</tr>
</tbody>
</table>

Note: All figures are statistically at 1 per cent or more.

Source: Balassa (1986) as presented in Binswanger (1989, Table 4).
Table 4.2-6 Recent Agricultural Performance of Countries in Sub-Saharan Africa

<table>
<thead>
<tr>
<th>Period</th>
<th>Countries under adjustment</th>
<th>Countries not under adjustment</th>
<th>Difference in growth rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-80</td>
<td>1.1</td>
<td>0.9</td>
<td>0.2</td>
</tr>
<tr>
<td>1980-85</td>
<td>2.7</td>
<td>1.8</td>
<td>0.9</td>
</tr>
<tr>
<td>1986</td>
<td>5.8</td>
<td>4.3</td>
<td>1.5</td>
</tr>
<tr>
<td>1987</td>
<td>1.5</td>
<td>-1.1</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Index of food production per capita (1979-81 = 100)

<table>
<thead>
<tr>
<th>Period</th>
<th>Index of food production per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984-86</td>
<td>97</td>
</tr>
</tbody>
</table>

Note: Countries under adjustment include: Burundi, Cape Verde, Central African Republic, Chad, Cote d'Ivoire, Gambia, Guinea Bissau, Kenya, Madagascar, Malawi, Mali, Mauritius, Nigeria, Senegal, Togo, and Zaire.

Source: Cleaver (1988) as presented in Binswanger (1989, Table 5).
What are the implications of these results for the impact of structural adjustment on the rural poor? Basically these results suggest that the rural poor will benefit more from adjustment in the short run the more that their income depends on the production of exportable agricultural products instead of importables and the less that the products in the production of which they are involved face increased input prices and reduced public infrastructure and credit. Over the longer run, Binswanger places considerable emphasis on the role of public infrastructure. However he emphasizes that for growth that infrastructure should be concentrated in areas with high agro-climatic potential, while many of the poor are located in much poorer agroclimatic areas. Thus, to the extent that many of the rural poor are not engaged in exportable production and that many of the rural poor are located in poor agro-climatic areas, Binswanger's analysis suggests that they may not benefit from adjustment programs much in the short run, nor -- unless they migrate -- even in the long run.

Section 4.3 World Bank-Supported Adjustment Programs and Living Conditions

Maasland and van der Gaag (1990) present careful cross-country statistical analysis of various indicators of living conditions (in particular labor and social indicators) in DMCs and other developing countries and how changes in them might be associated with participation in World Bank-supported adjustment programs in the 1980s. The approach focuses on comparing movements in such indicators among three country groups: early intensive adjustment lending countries (EIAL), other adjustment lending countries (OAL), and nonadjustment lending countries (NAL). Among the 25 countries in the EIAL group are four DMCs (Pakistan, Republic of Korea, Philippines, and Thailand). Among the 31 countries in the OAL group are two DMCs (Bangladesh, Indonesia) plus China. Among the 33 countries in the NAL group are four DMCs (India, Sri Lanka, Malaysia, Papua New Guinea). Therefore DMCs account for relatively small proportions of each of their country groups (though much larger proportions of the populations of each of these groups).

The procedures that are used in this paper include the comparison among country groups of the outcomes (levels, growth rates and deviations from the trends) and of regressions on macro aggregates (including GDP growth rates, investment to GDP ratios, changes in fiscal deficit to GDP ratios, changes in real exchange rates, and external terms of trade and interest rate shocks). The latter regressions, however, are presented only for the change in the employee compensation share.51 Most of the comparisons are undertaken using countries as the

51 Also, although the authors discuss possible problems with the endogeneity of policies and other right-side variables, they do not explore how robust the estimates are to treatment of these variables as endogenous.
unit observation independent of their differing populations. The authors are quite sensitive to looking at other characteristics of the distributions across countries than just the means, and attempt to explore how robust are their conclusions to the experience of outliers.

Maasland and van der Gaag's summary of their analysis is that the evidence does not reveal much in the way of systematic relationships between World Bank supported adjustment programs and short-run effects on available labor and social indicators. Among the labor indicators, the employee compensation share in GDP and agricultural wages seem not to be affected significantly. Average and median growth rates in real per capita rural incomes were higher in EIAL countries in 1985-7 than in the 1970s, but the manufacturing wage bill share of manufacturing value added tended to be lower. Among the social

---

52 This means that, say, Botswana is weighted the same as China, even though the latter has about 1000 times the population of the former. For the calculations of averages, such a procedure would seem to be troublesome since, by treating all countries equally, one is weighting each Han about a thousandth of a Tswana. But is it troublesome with respect to regression analysis? If the regression is linear in the (perhaps transformed) regression variables and if there is no heterogeneity in the stochastic terms that is associated with population size, then such a procedure would not seem to cause any biases. But if Asian countries (which include most of the countries with larger populations) have, say, more unobserved reverence for learning or relatively less land available, the estimation of the relation between outcomes of interest related to the rural poor and adjustment policies may be biased by the use of a selection rule that underrepresents Asian individuals.

53 The use of shares (both for labor compensation and for governmental expenditures on education and health) focuses on whether or not some group's income or some expenditure has kept in the same proportion to some denominator. But maintaining the same proportion of the same denominator is consistent with declining or increasing absolute values, as perhaps should be emphasized more. Moreover, if many individuals within a particular group are close to some critical subsistence level, as Ravallion (1990a,b) has emphasized, small absolute shifts may cause many to move from one side to the other of the subsistence level. Of course these comments are related to the more general problem with using aggregate data that obscures the distribution within countries, and the possibility that one might want to weight the changes more heavily for the poorer for the purposes of both the paper being reviewed and the present paper. If one were to do so in the Maasland and van der Gaag paper, incidently, it well may be the case that in the EIAL countries the poorer (largely in rural areas) improved their situation with regard to labor outcomes, rather than maintained it as Maasland and van der Gaag seem to summarize the overall impact on labor.
indicators, the growth of per capita consumption tended to be higher in the EIAL than in the other countries and nutrition, immunization, and mortality data indicate continued progress in all country groups. However health and education expenditure shares and primary schooling enrollment rates tended to decline in the EIAL countries, with possible long-run costs in terms of human resources.

They state in their conclusion: "The fact that this paper is unable to detect any discernible difference in social indicator trends between adjustment lending and nonadjustment lending countries probably says more about the usefulness of the specific country groups[54] than about the effects of any sets of adjustment policies on social outcomes. What is important, is that while the paper did not find any evidence that Bank supported adjustment lending policies per se had an adverse effect -- perhaps with the notable exception of declining primary school enrollment ratios in EIAL countries -- on any of the social indicators examined, the paper did not find evidence that adjustment policies accelerate social progress....These policies should be faulted for that, and the focus on long-term poverty reduction ... should be integrated in the SAL design....Given the inefficiencies in the social sector, there is scope for improvements in social indicators without large budgetary consequences....Compensatory interventions are required to mitigate the transitory social costs of adjustment on readily identifiable groups. However, the study's findings suggest that greater attention needs to be devoted to strengthening the analytic underpinnings of these interventions....In parallel to the design of short-term compensatory interventions, it is crucial to maintain the emphasis on the development of longer-term social sector strategies through economic and sector work and social sector lending, to guarantee sustainable success against the correlates of poverty." (pp. 77-8)

From the point of view of the present paper, Maasland and van der Gaag's conclusion that there is very little or no association between adjustment programs and the outcomes of interest may be over stated. The results concerning the improvement in rural incomes suggest that a more positive assessment might be appropriate even for the short-run effects, though this depends on the composition of the rural income

---

54 The use of World Bank-assisted adjustment as the criterion for assigning countries to groups for this study has advantages and limitations. It has the advantage of being a relatively clean criterion and of addressing in a sense the interests of the authors' employer. But from a broader point of view, a more relevant criterion would seem to relate to what policies various countries followed rather than to whether they happened to be World Bank assisted. Our interest should be much more in what are the effects of various policies rather than a particular institutional affiliation. It would require more work, of course, but the returns to defining country groups by clusters of the extent of policy change (e.g., changes in the governmental deficit relative to product, in the real exchange rate, etc.) would seem to have a high return for this type of analysis.
changes (about which they present no information). Such an assessment would seem to contrast even more than the authors' present summary with the summary position in the UNICEF studies regarding the negative impact of adjustment on the poor and on human resources. Whether one concludes that adjustment has positive or no discernible effect on rural poverty from this study, however, leaves quite open exactly what the mechanisms are that relate macro policies to the outcomes of interest.

Section 4.4 Some Country Case Studies

Sections 4.1 - 3 take cross-country perspective. I now turn to three case studies to provide a little more depth regarding particular experiences and some further possible suggestions for the country studies that are part of the present project. The first of these is for a DMC country, Indonesia. The next two are for two other developing countries, but their approaches may be suggestive for the country studies in the project.

Section 4.4.1. Indonesian Adjustment Experience in the mid 1980s

Indonesia was one of the oil exporters that least suffered from "Dutch Disease" in the oil market booms in the 1970s and the start of the 1980s, apparently due to skillful macroeconomic management of oil revenues. Like other oil exporters, Indonesia then experienced various external shocks during the early and mid 1980s. These originated primarily from the weakened international oil market. Petroleum accounted for most of Indonesian export value at the start of the 1980s, and public sector revenues were heavily dependent on oil exports so they were severely affected. The government in response undertook a rapid and voluntary adjustment program that included aggregate budgetary contraction (at a planned level of about one fifth), rapid and sizable currency devaluations, continuing monetary restraint, and trade, finance, and regulatory reforms (World Bank 1989b). Growth in GDP per capita fell sharply over the period, though it remained slightly positive. The aggregate sectoral structure of output and employment remained fairly static, halting the historical decline in agriculture's share. Ravallion and Huppi (1990) examined the evolution of

55This section draws heavily on material in Huppi and Ravallion (1990).

56To put this in perspective, for the two decades following 1965, among all economies with 10 million or more inhabitants, only four had higher growth rates than Indonesia according to World Bank statistics (i.e., Saudi Arabia, Republic of Korea, Taiwan-China, and Hungary -- see Behrman 1987).

57Among all countries with more than 10 million inhabitants in the two decades following 1965, according to World Bank statistics only one (Republic of Korea) had a larger increase in the share of GDP
aggregate poverty between 1984 and 1987 and found that it declined significantly despite the shocks and ensuing adjustments (and that this result is quite robust to alternative measures of welfare, poverty lines, and poverty measures).

I here summarize the analysis of how the sectoral structure of poverty changed in the same period, based on Huppi and Ravallion (1990). In 1984 75.3% of households received their income primarily from rural sources, and 71.4% did so in 1987. In terms of population shares according to major sectors of income and work status, the major rural groups in order of size were self-employed farmers (43.7% of total Indonesian households in 1984 to 39.8% in 1987), agricultural employees or laborers (8.4% to 7.9%), self-employed trade (6.3% to 7.3%), employees or laborers in services (4.7% to 6.1%), employees or laborers in construction (2.1% to 2.4%), employees or laborers in industry (1.9% to 1.9%), self-employed in industry (1.4% to 1.5%), self-employed in services (1.1% to 1.2%), and self-employed in transport (1.0% to 1.1%), and other (2.3% to 2.8%).

Although the shares changed somewhat between 1984 and 1987, the rankings remained the same. Farming accounted for the main source of income of over half of Indonesian households in 1984 and for slightly less than half in 1987. Farming was the main source of income for 69.2% of rural households in 1984 and for 66.8% of rural households in 1987.

In terms of average per capita consumption, the averages for all sectors were significantly below those of the top four urban sectors (i.e., urban financial employees, urban mining employees, urban service sector employees, and self-employed construction workers) in both years. Within the rural sector, the highest average per capita consumption in both years was for service employees, and the lowest (in increasing order) for farm laborers, self-employed miners and self-employed farmers. On a cross-sector comparative basis, therefore, for the whole economy or for the rural sector alone, the per capita consumption levels were relatively low for the relatively large numbers of households that obtained their income primarily from agriculture.

Between 1984 and 1987 the three-year growth in mean real per capita consumption per capita was highest for urban finance employees originating in manufacturing than did Indonesia (Behrman 1987).

The other sources include employees or laborers in mining, trade, and transportation and self-employed in mining and construction. None of these individually accounted for as much as 1% of Indonesian households.

For such comparisons the use of the correct deflator is quite important since own-farm production of food plays a large role in the consumption basket. Huppi and Ravallion seem to be sensitive to this problem.

Huppi and Ravallion also present similar calculations for per capita mean incomes, but focus on the statistics for consumption presumably because of their closer relation to longer-run welfare (given
(29.1%), followed by rural self-employed construction workers (26.2%), rural self-employed mining workers (23.8%), urban self-employed farmers (20.8%), rural industry employees (17.1%), rural agricultural workers (16.3%), urban trade workers (15.8%), rural transportation workers (13.9%), urban self-employed in trade (13.1%), rural self-employed in trade (12.3%), urban workers in transportation (12.3%), rural self-employed in farming (12.2%), and then the other 16 possibilities (including urban industrial workers at 7.9% and urban self-employed at 7.3%). Thus per capita mean real consumption increased impressively in this period for a number of rural groups, including the relatively large numbers of households in the relatively poor (at least on average) rural agricultural sectors.

The sectoral means provide some information about relative positions and changes in those positions over time. But they do not convey information about the distribution within sectors. Table 4.4.1-1 summarizes some information about poverty within and across sectors and changes in poverty between 1984 and 1987 for a head count indices of poverty and for Huppi and Ravallion's preferred index (in which the gap between a household's position and the poverty line is weighted by the size of the gap so that the distribution of poverty below the poverty line is considered, with more weight the further a household is below the line). For both of these indices, the total national poverty levels and changes are decomposed into the reduction due to within sectoral changes (for which only those associated with rural farming are included explicitly), the effects of population shifts across sectors, and interaction effects.

The first row of this table indicates that substantial poverty reduction occurred between 1984 and 1987, with a drop of from 33% to 24% of the households below the poverty line (and reductions in the poverty faced by those below the poverty line so that the preferred measure dropped even more). The within sector detail reflects that relatively high proportions of the population in households with the major source of income being rural agriculture were below the poverty line in 1984: 53% of the farm labor households and 44% of the farm self-employed households (and the preferred measure indicates considerable relative poverty for those below the poverty line in these two household groups). But these shares fell over the period so that by 1987 they were 38% and 31% (and the preferred measure fell similarly, indicating less poverty among those below the poverty line).

The decomposition indicates that the vast majority of the reduction in poverty occurred within sectors -- 89.3% by the headcount measure and 95.6% by the preferred measure. Next in importance was population shifts across sectors -- 13.2% for the headcount measure and 9.4% for the preferred measure. The smaller (and negative) interaction terms

large transitory fluctuations in income). For rural farm workers and rural self-employed farmers the growth in per capita real income over this period, respectively, was 14.4% and 10.2%.

Urban self-employed farms accounted for 1.3% of households and urban farm workers accounted for 0.7%.
Table 4.4.1-1  Indonesian Poverty Levels and Changes, 1984 and 1987

<table>
<thead>
<tr>
<th></th>
<th>Headcount Index</th>
<th>Preferred Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Share in 1984</td>
<td>Share in 1984 1987 Reduction</td>
</tr>
<tr>
<td>National</td>
<td>33% 22%</td>
<td>100% 3.17 1.24 100%</td>
</tr>
<tr>
<td>Decomposition of Changes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within sectors</td>
<td>89.3</td>
<td>95.6</td>
</tr>
<tr>
<td>Farm labor</td>
<td>53 38</td>
<td>10.8 5.79 2.17 15.7</td>
</tr>
<tr>
<td>Farm self-em.</td>
<td>44 31</td>
<td>48.0 4.44 1.99 55.5</td>
</tr>
<tr>
<td>Across sectors</td>
<td>13.2</td>
<td>9.4</td>
</tr>
<tr>
<td>Interaction</td>
<td>-2.6</td>
<td>-4.5</td>
</tr>
</tbody>
</table>

Notes: Based on Huppi and Ravallion (1990), Table 2. The within sector details refer only to rural farm labor.
account for the rest. Furthermore, within sector changes in rural agriculture account by themselves for the majority of the reduction in poverty -- 58.8% of the total for the headcount measure and 71.2% of the total for the preferred measure. Thus reductions in the intrasectoral poverty in the initially relatively poor rural agricultural sector were a major factor in the substantial national and rural reductions in poverty.

Exploration of the details of changes in the rural sector leads to further insights. The gains to the rural poor largely were due to the relatively high growth in the sector, with at most 30% of the reductions in poverty measures due to distributional changes that favored the poorer. Over half of the gain to poor rural farmers was due to gains in Central and East Java. In these two key provinces, gains in both farm incomes and wage earnings contributed to poverty alleviation. Elsewhere the patterns were more varied.

Huppi and Ravallion conclude that their results suggest that any features of the government's adjustment program that favored rural areas (particularly in Java) were crucial in maintaining ongoing poverty reduction during adjustment. There is some evidence that the poor gained from expansion in agricultural exports (largely non-food) and where there were sizable gains in cash crop incomes such as in parts of Java, the poor participated in those gains. There also is evidence that adjustment cuts in governmental budgets tended to shelter consumption at the expense of investment (though the simulations of Thorbecke et al 1990 suggest that in the medium run the poor would have been better off with less of a reduction in investment and more of a reduction in current consumption).

But in addition to some favorable dimensions of the adjustment program, Huppi and Ravallion emphasize that an important factor was favorable initial conditions. They suggest that the decade or so of sustained and fairly equitable growth had created conditions in which the momentum of poverty alleviation could be maintained at lower growth rates and that some of the stimulus from earlier rural infrastructural investment began to yield substantial returns by the time of the adjustment period (Ahmed and Peters 1990).

Section 4.4.2 The Impact of Macroeconomic Adjustment on the Poor and on the Social Sectors in Jamaica

The most visible of the country studies directed to the evaluation of the impact of adjustment programs on the poor and their human resources are those associated with UNICEF (Jolly and Cornia 1984; UNICEF 1984; Cornia, Jolly and Stewart 1987). These studies do not formalize explicitly the links between economic adjustment and the poor and their human resources along the lines suggested by the discussions in Sections 2 and 3 above. But they attempt to use secondary data to characterize some of the links relating to factors such as unemployment, the composition of governmental expenditures, and direct indicators of health, nutrition, and education. Since these studies have been the basis of the most visible advocacy for the proposition that standard adjustment programs have strong deleterious effects on the poor and their human resources at least in the short run and quite possibly in
the longer run, some consideration of their empirical bases is useful here. I consider the case of Jamaica because that is one that has been emphasized in the UNICEF case studies and because, for a basis of comparison, I have been involved in an independent adjustment of the Jamaican experience (with Deolalikar). The UNICEF study of the Jamaican experience was by Boyd (1988) as part of the UNICEF project presented in Cornia, Jolly and Stewart (1987, 1988) and our study was as part of an evaluation of the Jamaican experience with structural adjustment by the Operations Evaluation Division of the World Bank in Behrman and Deolalikar (1989a,b, 1990a, 1991).

The authors of both of these studies agree that the Jamaican economy had undergone long stagnation before the initiation of structural adjustment efforts in the first half of the 1980s. Both argue that 1984–85 were the critical years in which relatively serious Jamaican adjustment efforts were made. Both focus on the impact of the 1984–1985 adjustment package on the poor and social sectors. Both are limited to fairly short-run effects of the 1984–1985 policy package due to the timing of the studies and the lags in data. Both are subject to the same limitations regarding the nature of the available data and of previous work on which to build. Both apparently were undertaken with fairly limited resources.

The UNICEF summary of the Jamaican 1984–5 adjustment experience is very much in line with their overall summary of the impact of adjustment on the poor and on the social sectors. Boyd (1988: 153–4), for example, concludes:

There is considerable evidence that economic policies ... have served to worsen the condition of the poor in Jamaica.... The economic adjustment policies of the 1980s ... have had considerable stagflationary effect. The impact on the poor has also been considerable, with decline in quantity and quality of public services on every front - health, education, housing, and water - and increasing costs for what exists. The government has sought to mitigate these effects by its welfare programme, primarily its Food Aid Programme. This programme... has not been sufficient to offset the adverse development on nutrition arising from falling real incomes and rising relative food prices. There has been a marked increase in malnutrition among children...The removal of subsidies, increasing redundancies and unemployment, and the reduction in

62 The most recent data that Boyd's (1988) study includes are from the 1985/6 fiscal year. Our study in Behrman and Deolalikar (1989b) includes some data for 1987.

63 For example, neither builds on previous economy-wide models of Jamaica because recent economy-wide models suitable for this purpose do not exist.

64 Our study was undertaken in about 40 person days primarily in mid 1988. We do not know how much time was devoted to the Boyd (1988) study, but it appears to be about the same or a little less.
social and economic services, inter alia, have all had direct adverse effects of significant magnitude...[D]ecline per capita incomes persist....[T]he welfare of households continues to decline. ....Changes in the short-run economic policy of the government and an improvement in the administration of social security and other welfare schemes are urgently required."

Cornia and Stewart (1987: 114-115) summarize the Jamaican experience very much in the same spirit as one of the UNICEF case studies supporting the urgent need for adjustment with a human face in Cornia, Jolly, and Stewart (1987).

Much of our analysis simply tries to establish the "facts" regarding whether there is evidence of significant deviations for 1984-5 in relevant indicators from the underlying secular trends. We do so by presenting regression estimates with quadratic secular trends and testing whether the deviations from these trends for 1984-5 are statistically significant.65 This permits a systematic examination of the possibility of short-run effects of the adjustment program on indicators of poverty, education, health, nutrition and other outcomes of interest. The quadratics in the secular trends allow for the possibility that the economy was coming out of its long deteriorating experience in the mid and late 1980s because of the adjustment program or for other reasons. This approach certainly has its limitations. Given the length of the available data series, these estimates do not permit us to consider the longer-run effects of the adjustment program, whether they are positive or negative. In that respect, of course, our study is not different from Boyd's (1988) study or from most of the other UNICEF studies. The secular trends, moreover, do not necessarily represent the counterfactual paths that would have been followed if there had not been an adjustment program or if the adjustment program had been of a different nature. But this procedure does permit a systematic evaluation of whether the indicators of poverty and of variables related to the social sectors differed significantly during the critical 1984-5 years of the adjustment program from the underlying sectoral trends. Such results may be suggestive of what the short-run counterfactual experience might have been without the very difficult and expensive development of a model along the lines discussed in Section 2. We also attempt to explore systematically in a limited way some dimensions of the relevant reduced-form and structural relations.

I now turn to the major topics that we analyze. I give a brief summary of our results, with emphasis on those related directly to the rural sector and to human resources.

1. Impact of the adjustment program on employment and income distribution: Cornia and Stewart (1987: 114) state that "unemployment has remained very high, at 26 per cent overall in 1984..." as one of their major indicators of the high social cost of Jamaican adjustment efforts. But the total unemployment rate peaked in 1982 and declined

65 We use "significantly" to refer to a t test at the 10 per cent level. The underlying time series vary in length, but most of them start in the early 1970s and continue through 1985 or 1986.
monotonically thereafter with no significant deviation from the trend in 1984-5. Cornia and Stewart and DeTray (1985) claim that female and youth unemployment are particularly important indicators of labor market conditions because these groups are more marginal labor force participants than are adult males. Female employment may be particularly related to health, nutrition, and education in Jamaica where almost half of the households with children are female-headed. But the unemployment rates for females and for youth also indicate no significant deviations in 1984-5 from the trends. Boyd (1988) emphasizes the increasing "informalization" of Jamaican employment as reflecting the deterioration of labor conditions. The best available measure of informalization is the share of employment in self-employed and independent occupations, which rose from 39.1 per cent in 1983 to 41.0 per cent in 1984 to 42.7 per cent in 1985. But the support for Boyd's informalization conjecture seems quite limited despite such increases because 1983 appears to be an anomaly (the four previous years all had over 40 per cent, with 1981 at 42.7 per cent and 1982 at 42.6 per cent) and because neither the number nor the share of employees in such occupations in 1984-5 differed significantly from the trends.

Even for those working in the paid labor force, of course, employment is only part of what determines income, with movements in real wages another important part of the story. Wage data for Jamaica are quite limited. Changes in median wages reported in the labor force survey relative to the consumer price index is one indicator of real wages movements. There is no evidence of significant deviations in 1984-5 from the secular trends in the real median wages for men or for women. Of course many of the poor do not receive most of their income from wage labor. A major alternative source of income for the rural poor is agricultural production of non-export crops, and such income is of particular interest for the present paper. But there were no significant deviations from the secular trends for 1984-5 in any of the nine indicators that we could locate of non-export agricultural quantities, prices, and domestic product. Finally, some of the poor receive some income in the form of governmental welfare and social security transfers, but these also do not reflect any significant deviations from the trends for 1984-5.

---

66 Jamaican unemployment statistics include those who are actively seeking jobs and those who are not actively seeking jobs among the unemployed, which is part of the reason that Jamaican unemployment rates are quite high in comparison with other countries. The results reported in the text hold whether total unemployment or unemployment among job seekers alone is considered.

67 As is discussed in detail in Behrman and Deolalikar (1989b) the 1983 values seem anomalous so that there appear to be drops from 1983 to 1984-5, but not a significant deviation below the secular trends defined over longer time periods (and, in fact, the median real wages in 1984-5 exceeded those for 1978-82). We also discuss there other information regarding wage movements that tends to reinforce the conclusions presented in the text.
Thus the available evidence does not seem to support there being any significant deleterious effect of the 1984-5 adjustment program on employment, real wages, agricultural income of the poor, or governmental transfers to the poor.

2. Impact on social sectors: Cornia and Stewart (1987: 115) claim that "tough stabilization programmes...have cut deeply into social services," and, Boyd (1988: 144, 147) states that the decline in aggregate central government expenditure has been at the expense of social services ...[and that] recurrent expenditure on social services has fallen ...in 1984/85 and 1985/86 by 27 per cent and 16 per cent respectively in real terms.

We now consider the available evidence with respect first to education, then food and nutrition and, finally, to health indicators.

Education: Cornia and Stewart (1987: 115) claim that "educational expenditure per head of the population aged 0-14 declined by 40 per cent" (apparently in 1981/2-1985/6). However we calculate that the decline in real governmental expenditures on education per child aged 5-14 between 1983-4 and 1985-6 was -0.1%. This sharp difference appears to reflect three factors. First, they apparently used the overall GDP deflator instead of the sector-specific deflator, which overstates the real resource decline substantially since real wages in education dropped sharply. Second, Cornia and Stewart refer to a longer period in which the secular trend in such real expenditure was negative, not just to 1984-5. Third, because of changes in the age distribution, although the population grew by 2.7 per cent between 1983 and 1985, the number of children age 5-14 declined by -1.7 per cent. In addition to our calculation of basically no decline in real governmental expenditure on education, regressions for available time series data on education inputs and outputs also generally indicate no significant negative deviation for 1984-5, with the single exception of output of craftsmen, production process and operating workers per 100,000 population.

Nutrition: Private real food expenditures are available in the national accounts for ten food groups. For none of these groups is there a significantly negative deviation from the trends for 1984-5. Moreover, for total food, root crops, and sugar and sugar products (and for bread and cereals at the 15 per cent level) the deviations are significantly positive. Total food imports per capita in U.S.$ did not deviate significantly from the trend, though there was a significant shift from meat and meat preparations to dairy products (and, at the 15 per cent level, to cereals and cereal preparations). Thus average real food expenditure increased in 1984-5, and the composition shifts tended to be towards basic staples, which suggests that the increased real food expenditure was not primarily due to increases in expenditure by those at the upper end of the income distribution. Such results do not support the claim that there was a major deterioration in food and nutrient intakes among the poor in 1984-5.

We also use these food data to estimate linear food expenditure relations. Such relations suggest that the food consumption elasticity is a little over 0.7; this implies that the real food expenditure would drop 1.9 per cent with the 2.5 per cent drop in real product per capita in 1984 and 4.3 per cent with the 5.8 per cent drop in real product per
capita in 1985. The use of these estimated expenditure relations to predict real food expenditure suggests the possibility of some deterioration in nutrition intakes in 1984-5, even if the data from which the relations are estimated do not. But would these more pessimistic estimates imply a serious deterioration in nutrient intakes? A number of recent studies of poorer populations (e.g., Behrman and Deolalikar 1987a, 1989d, 1990b, Bouis and Haddad 1990, Garcia and Pinstrup-Andersen 1987, Greer and Thorbecke 1984, Kumar 1987, Pitt and Rosenzweig 1985) suggest that possibly not, because people with more income tend to pay substantially more per unit of nutrients that they consume than do poorer people presumably because they buy other food qualities and have greater food leakages to guests, workers, animals, and waste. The 1984 Jamaican consumption expenditure survey permits estimates of nutrient elasticities with respect to food expenditure for different income ranges. For the lowest income range, these elasticities are in the 0.3 to 0.4 range, implying that with a 5 per cent drop in real food expenditures, nutrient intakes would drop no more than 2 per cent. Thus even these more pessimistic estimates do not suggest substantial deterioration in nutrients in 1984-5.

But of more interest than the nutrient intakes are the indicators of the impact of nutrients. The two most cited indicators for which there are time series data are the percentage admissions from malnutrition or malnutrition-gastroenteritis of children 0-59 months old at Bustamente Children's Hospital and the percentage distribution of children aged 0-3 years by the Gomez classification of normal and grades I, II, and III malnutrition based on anthropometric measures. These in fact are the only time series indicators of health outcomes to which Boyd (1988) refers. Cornia and Stewart (1987: 115) also refer to both of these indicators in their summary of the negative effects on the social sector of economic adjustment policies in Jamaica:

National nutrition surveys show declining levels of nutrition among children. The proportion of children showing some signs of malnutrition rose from 38 per cent in 1978 to 42 per cent in 1985. This decline was experienced in both rural and urban

68 This is the case even though the poor sometimes pay more for food of identical quality because they cannot make bulk purchases, etc. Previous estimates often tended to overstate the response of nutrient intakes to income changes for poor people because of the failure to control for the food composition and leakages mentioned in the text and because of correlated measurement errors in food expenditures (used as the basis for nutrient calculations) and total expenditures (used to represent total purchasing power). See Behrman (1990e) for a review of this literature.

69 Such estimates are likely to be overestimates because of the problems to which reference is made in the previous note.

70 That the nutrient elasticities with respect to food expenditures are substantially below one also brings into question Boyd's (1988: 137) assertion that substitution among foods is not important.
The trend is confirmed by evidence of admission to the island's major children hospital, with the numbers of children admitted suffering from malnutrition more than doubling from 1978 to 1985 and a threefold rise in the number suffering from malnutrition-related gastro-enteritis. The sharpest increase occurred in 1984 and 1985.

I now review the evidence regarding these two indicators of child malnutrition status.

Hospital admissions with malnutrition increased from 2.1 per cent in 1983 to 2.4 per cent in 1984 to 3.7 per cent in 1985 and that with malnutrition and gastroenteritis increased from 2.0 per cent to 2.7 per cent to 4.7 per cent in these three years. Prima facie this might seem strong evidence of increasing malnutrition, and so has been interpreted by Boyd (1988) and Cornia and Stewart (1987). However, five qualifications seem important in interpreting these data. First, the same data source indicates that from 1983 to 1984 the percentage of admissions for malnutrition and/or gastroenteritis (a third category in the original data that is not reported by Boyd) fall from 23.5 per cent to 19.0 per cent, so for that year the slight increases noted above only may reflect changes in categorization between malnutrition with gastroenteritis versus simply gastroenteritis. (The same is true to a much lesser extent in 1985.) Second, the patients admitted to one hospital are not likely to be representative of the affected population in different regions and classes, though it is hard to know which way this biases such an indicator. Third, the increased percentages for malnutrition and malnutrition and gastroenteritis in 1984 and 1985 reflect not only increases in the absolute numbers of children admitted for these diseases, but also a decline in the total admissions from 4709 in 1983 to 4512 in 1984 to 3369 in 1985. It might be strange to conclude that this component of the changed percentages reflects that children were worse off in 1984 and 1985 (but see the next point). Fourth, the demand for hospitalization usually is thought to be income elastic, and thus increases with income for a given health status, rather than vice versa. Fifth, there are not significant deviations in 1984 and 1985 from the secular trend for such admissions. For all of these reasons, substantial caution should be used in interpreting these hospital admissions numbers, which appear after these qualifications to be at most a fairly weak indicator of increasing malnutrition.

The percentages of children in each Gomez category of nutrition shifted in 1984 and 1985 to indicate greater malnutrition, with the percentage normal dropping from 74.2 per cent in 1983 to 72.9 per cent in 1984 and 1985. The decrement in the percentage share normal was distributed across all three grades of malnourishment. Again, some caution is needed in interpretation for several reasons. First, the quarterly variations in the data are considerable, and not due to an obvious seasonal pattern. For example, the percentage normal increased from 71.3 in the fourth quarter of 1984 to 75.0 in the first quarter of 1985 and then fell back to 72.7 in the second quarter of 1985. Second, the selection procedure for measurement is not clearly random since it apparently depends on going to child health clinics. Third, none of the deviations in 1984 and 1985 from the secular trends for the Gomez percentages are significantly non-zero.
Thus, these two sets of indicators do not seem to provide nearly as much confirmation of declining child nutrition as the quotations above from Cornia and Stewart (1987: 115) and Boyd (1988: 153-4) claim.

Another question that can be asked about these two indicators of nutritional status is how are they related to governmental expenditures and indicators of health care availability and income. We estimate relations in which they depend upon real per capita governmental recurrent and capital health expenditures. None of the coefficients of the capital expenditures are significantly non-zero, as might seem plausible a priori since capital improvements are likely to have a lagged effect. But three of the six coefficients of recurrent expenditures are significantly negative -- those for the percentage of children with Gomez grade II and those for malnutrition and malnutrition and gastroenteritis cases as a percentage of hospital admissions. We also estimate relations for the same dependent variables with right-side variables including real per capita gross domestic product (with significantly negative coefficients for Gomez grade III and for malnutrition admissions), hospital beds per capita (with a significantly negative coefficient for malnutrition-gastroenteritis admissions), and population per physician (significantly negative for the Gomez normal category and positive for all of the others except Gomez II). These significant coefficients provide some support for the interpretation of the Gomez indicators and hospital malnutrition admissions as reflecting more general health and nutrition conditions, and thus create greater confidence that they are reflecting some true nutritional deterioration at least for children in 1984 and 1985, despite the qualifications made above.

Health inputs and outcomes: There are a number of indicators of health inputs and health outcomes for which time series are long enough so that whether the values for 1984-5 differed significantly from the underlying secular trends could be investigated: total real governmental expenditure on health per capita; recurrent real governmental expenditure on health per capita; capital real governmental expenditure on health per capita; total real governmental expenditure on water and sanitation per capita; total real governmental expenditure on social sectors per capita; percentage of children 0-1 immunized against diphtheria, pertussis, tetanus (DPT); percentage of children 0-1 immunized against polio; percentage of children 0-1 immunized against measles; percentage of children 0-1 immunized against a vaccine for tuberculosis (BCG); population per public-sector physician; population per public-sector nursing person; number of beds in governmental hospitals; number of beds in governmental hospitals per capita; real per capita gross domestic product spent on health and medical services; imports of medicines and pharmaceutical; infant mortality rate; death rate; incidence of measles; incidence of tetanus; incidence of tuberculosis, and incidence of typhoid. Consideration of deviations for 1984 and 1985 from longer secular trends indicates no significant impact for most of the health input variables, a positive one for the number of beds in governmental hospitals, and negative ones for total real governmental expenditures per capita on health (indicating a downward shift of 14.6 per cent) and for the capital components (a downward shift of 46.2 per cent). These downward shifts in governmental real health
expenditures are fairly considerable and would seem to have negative short- and longer-run implications, even though any such deduction must be qualified due to the absence of any other indicators of significant downward shifts in health inputs (and the one positive shift noted above). At least in the short run greater efficiencies and rationalizations, as well as substitution of private for public health care, may have offset the decline in real governmental per capita health expenditures.

Indicators of health outcomes for which there are time series of sufficient duration to discern possible deviations from the secular trends are few. For none of these health outcome indicators is there a significant deviation in 1984/5 from the secular trends. Thus, the lack of significant impact on health outcomes is consistent with the suggestion in the previous paragraph that rationalizations and increased efficiencies may have offset most of the negative impact of the significant fall in governmental health expenditures, though the few available indicators means that such support is limited.

Conclusions: First, there is some evidence of an initial negative macro impact in 1984 and 1985 in terms of indicators such as per capita gross domestic product and inflation, followed by medium-term improvements. But focus on deviations from the secular trends to see if the situation worsened relative to the underlying movements in 1984 and 1985 rather than just whether it was bad, leads to a much less negative assessment of the situation in these years than by some previous analysts, such as Boyd (1988), Cornia and Stewart (1987) and Davies and Anderson (1987). If in fact the macro effects were less than often claimed, of course, that means that there may be limited impact on the poor and on health and nutrition because of the limited macro effects.

Second, the negative short-run effects on employment and distribution also seem limited, and again more limited than suggested by observers such as Boyd (1988) and Cornia and Stewart (1987). Most of the short-run impact on employment, in fact, seems to have been neutral or positive, without significant negative deviations from the secular trends even for the usually most vulnerable demographic groups, such as youth and women. There is some indication, however, that real wages may have declined, though the information is very sketchy. Moreover, the efforts to keep food prices low for the benefit of consumers possibly had ongoing negative impact on the incomes of some of the poorer Jamaicans in agriculture, though the evidence on this possibility also

There are considerable questions, moreover, about the reliability of the mortality data.

Our conclusions must be qualified for such reasons as: limited data; lags in the adjustment process and the need to assess the medium-run as well as the short-run effects, though the former are only beginning to be revealed; the difficulties with counterfactual analysis, particularly given other changes including those in the world alumina/ bauxite market; and complexities, substitution and feedback both on a micro and a macro level, including substantial adaption at the household level and in the public sector.

74
is very limited. Almost for sure governmental transfers and services in real terms fell, though not so much from the underlying trends as often is suggested. Moreover, in Jamaica as in other societies, these programs tend to affect middle-income groups much more than the poorest.

Third, governmental expenditures on social services undoubtedly declined in real terms, and in the aggregate, in 1984 and 1985 were significantly below the trend. Nevertheless, the evidence of deterioration in these sectors is limited, and matched by about as much evidence of improvements. Only for one out of ten educational indicators is the deviation for 1984-85 significantly negative. Real per capita food expenditure seemed stable despite income declines and real food price increases, perhaps due in part to some success for food programs. The small nutrient elasticities with respect to total expenditure suggest that part of the explanation for nutritional developments was the substitution of lower cost nutrients for more expensive ones (a pattern also observed in food imports), which may reflect some important welfare loses, but not very large nutrient intake deterioration for most Jamaicans. Nevertheless, there is some evidence, despite considerable qualifications about the data, of some nutritional deterioration for small children, though probably with subsequent recovery after 1984-85. For non-nutrient health-related indicators of inputs and outputs there were about as many positive as negative changes in 1984/5, and very few significant deviations from the trends, despite drops in real governmental health expenditures per capita. Thus, possibly rationalization and efficiency gains in the sectors that provide these services, as well as the substitution of private for public inputs, at least in the short run offset real resource reductions.

Section 4.4.3 Poverty and Social Dimensions of Structural Adjustment in Cote d'Ivoire

Cote d'Ivoire had substantial growth in the 1960s and much of the 1970s, but begin to suffer substantial setbacks in the late 1970s, in part because of substantial declines in the world prices for coffee and cocoa exports. The government therefore initiated steps towards financial stabilization and structural adjustment to address basic rigidities and supply-side problems. The latter program was supported by World Bank structural adjustment loans (SALs) in 1981, 1983, and 1986. Kanbur notes the following four salient features of this experience: (1) Financial stabilization with severe cutbacks in governmental investment and current expenditure was the backdrop. (2) The SALs became more and more specific. (3) There is only one major reference to the social sectors in the SALs (i.e., the withdrawal of the government from the urban housing market). (4) Income distribution aspects are not addressed specifically, though the objective of redressing the rural-urban terms of trade and of restoring sustainable growth clearly may be conducive to poverty alleviation.

A regional poverty profile for 1985 suggests increasing poverty with distance from Abidjan and with less urbanization, with the greatest

---

73This section is based on Kanbur (1990).
poverty in the Savannah. With a poverty measure that emphasizes the extent to which households in poverty are below the poverty cutoff (the preferred measure discussed in Section 4.4.1), the Savannah accounts for over 50 percent of national poverty and over 60 percent of "hard core" poverty even though it has less than 20 percent of the population. A regional ranking of governmental "targeting indicators" with reference to governmental activities which increase income suggests a ranking that is consistent with a poverty focus.

Decomposition of the poverty profile by household type according to major economic activities -- food croppers, export croppers, informal sector, formal sector, and government sector -- yields this ordering of decreasing shares in poverty. By the preferred poverty measure discussed in Section 4.4.1, the food cropper households account for about two-thirds of Cote d'Ivoire's poverty. The rankings of targeting indicators, once again, are consistent with a poverty focus across household types.

Rankings of basic needs achievement (that focus on education, health and housing) maintain more or less the rankings by region and by household type. For instance, the literacy rate for the poor is about half the national average, schooling attendance rates for primary school age children among poor households is about three-quarters the national average, the children who do attend school from poor households average lower grade age-specific educational achievement, and the proportions of ill who consulted health personal or who used hospitals are lower among the poor than for the national average. Renting housing is more common among the poor than the nonpoor in Abidjan, but the opposite is the case in the rest of the country.

Changes in poverty over the 1980-85 period are "backcast" on the basis of the 1985 poverty profiles, sectoral growth rates over that period, and input-output accounts. During this period, real per capita household income declined at the remarkable average annual rate of about 2.6 percent per capita. But Kanbur argues that the poverty incidence increased even more rapidly. Under the assumption that the pattern of income distribution in 1985 had prevailed throughout this period, he estimates that the incidence of poverty increased at 4.3 percent per annum and that the incidence of "hard core" poverty increased at 7.9 percent per annum.

Kanbur concludes with the following policy implications: (1)

---

74 Kanbur defines hard core poverty by using a lower poverty line. This definition does not refer to hard core in the sense of permanence. If transitory income fluctuations are large (as often is the case in rural societies, especially where water is less available and more variable, as in the Savannah), there may be substantial variation over time with regard to whether specific poor households are classified as being in hard core poverty.

75 The absence of household survey data before 1985 precludes direct comparison with poverty profiles generated directly from earlier household surveys.
Reductions in domestic product prices for exports in order to augment governmental revenues tend to increase poverty. (2) Within the export crop category, cotton farmers have a very high incidence of poverty and should be a target group of special concern. (3) Policies that increase prices of tradeables relative to non-tradeables have mixed impact on poverty, with the relative gainers being relatively poor export cropper households and relative well-off formal sector households. (4) Rice price policy, at least for policy purposes, should favor the relatively poor producers over the relatively better-off consumers. (5) Governmental housing subsidies did not benefit the poor much, partly because of their urban focus.
Section 5. Conclusions

In this paper I first discuss analytical models for analyzing the impact of macro policies on the rural poor in the DMCs and then I review several cross-country and country case studies that are related to these concerns. I here summarize the material on both of these topics and then turn to some concluding reflections on some of the issues that are raised by this paper.

Section 5.1 Analytical Frameworks for Considering the Impact of Macro Policies on the Rural Poor in the DMCs

It is useful to distinguish conceptually between two broad types of macro policies: first, short-run macro stabilization policies that intend to return the economy to an equilibrium path from which it has moved (perhaps due to unanticipated shock) and second, longer-run adjustment policies that intend to change the equilibrium path of the economy. In practice, often some of the same tools (e.g., fiscal and monetary restraint) are used for both purposes, and often stabilization efforts are part of longer-run adjustment programs. Nevertheless, the distinction is useful analytically because, for example, the difference in intent may affect importantly the perceptions of the duration of any policy changes -- and thus the incentives for private entities to make any longer-run behavioral changes in response to the policies.

One can speculate about many possible effects of macro stabilization and adjustment policies on rural poverty. Within simple models, some of these are predicted with confidence about their direction, if not their magnitudes. At a fairly high level of abstraction, real incomes of poor rural households can be altered by macro economic policies through the conduits of meso variables to change the assets broadly-defined that the household has, to change the prices broadly-defined that the household faces for the goods and services that it produces and for the goods and services that it uses, and to change the net governmental and private transfers that the household receives. In addition, there may be induced household formation or dissolution and migration, both of which may have important implications for rural poverty.

But within more complicated models, or with a combination of macro policy changes, such predictions are much less confident, not only with regard to the magnitudes, but also possibly the signs. Moreover the DMCs vary considerably in a number of dimensions that may affect substantially the effectiveness of different macro policies: the extent of integration into market economies, the development of markets (particularly financial and risk sharing/shifting markets), the importance of nonmarket institutions for such purposes as resource transfers and insurance, the extent to which various functions (e.g., banking, insurance) are state monopolies, the extent of regulation of economic interactions with international markets and of domestic decisions, the extent of infrastructure development. These differences mean that the initial conditions into which macro policy changes are introduced may be critical in analyzing such policies, so that generalizations about the impact of macro policies on the rural poor in
DMCs are fraught with risk. Instead careful analysis of individual situations is critical. However it should be recognized that most of these characteristics that differ among DMCs themselves reflect in part policies, and thus may be effected by policy decisions -- for instance, to liberalize the economy or to improve the public infrastructure.

The issues of the sizes and the directions of the impact of macro policy changes on rural poverty, thus, are basically empirical issues, both because of the general complications of analyzing macro policies that may percolate throughout the whole economy with different lags and because of the important differences among the DMCs. Ideally the impact of macro policies on rural poverty would be analyzed within an economy-wide model specific for a particular DMC with different types of rural households, with a multiplicity of relevant markets and assets, and with explicit representation of the impact of macro policies over time. To my knowledge, no such model is available for any of the seven DMCs included in the country studies, and it would be far beyond the scope of the individual country studies to develop such models as part of the project.

Therefore I suggest that various reduced-form relations be estimated in order to evaluate the impact of macro policies, perhaps as mediated by price and infrastructure meso variables, on the assets, prices, transfers, dissolution/formation and migration of poor rural households. Such an approach has its limitations, and care should be taken to explore the robustness of the results (e.g., to differing assumptions about exogenous instruments to use in controlling for the simultaneity of policies). Subject to such qualifications, such estimates will suggest at least the order of magnitude of the effects of macro policies on the rural poor in particular DMCs, within a framework that allows for the possibility that such households can cope considerably in response to the changes that they face. One important issue that must be kept in mind in this analysis is that the response basically has a time subscript, depending on the duration and the success of the macro policies being considered. It is easy enough to think of situations in which the immediate impact of a particular macro policy on an important meso variable for rural poverty may be in one direction, but the longer-run effect may be in the opposite direction. Therefore it is important to consider the time paths of various responses.

Once greater information is available about the time paths of responses in rural poverty and in intervening meso variables to various macro policy changes, the next general issues are: (1) can alternative macro policies that are less detrimental to rural poor be used to achieve the same goals and (2) how can poor rural households be made more able to cope with any negative changes. It is not clear that the project studies can be more than speculative about the former question because to evaluate it requires an assessment of the effects of macro policies on a range of outcomes, not just rural poverty. With regard to the latter question, a number of possibilities come to mind on a priori grounds: increasing rural households' adjustment capacities through more information and more education, improving capital and insurance markets, instituting targeted programs such as ones related to the availability of basic stapes and work relief efforts, increasing
governmental transfers. After the seven DMC studies learn more about the magnitudes and directions of relations between macro policy changes and rural poverty, it will be useful to turn to the issue of which, if any, of policy-related coping mechanisms should be developed or extended in light of the nature of the macro policy-rural poverty links.

Section 5.2 Cross-Country and Country Case Studies of Specific Aspects of the Impact of Macro Policies on the Rural Poor in Developing Countries

It is useful to consider existing studies both because they provide some illustrations of some possible approaches for the specific DMC country studies that are part of the overall project of which this paper is a part and because they raise some questions for consideration by the country studies that are part of this project.

Cross-country examination of the incentives for agricultural products created by past policy regimes and the probable changes in them that would result from structural adjustment suggests that adjustment is likely to result in substantially improved prices for agricultural exportables due to large indirect effects through general policies in addition to smaller direct sectoral specific effects. The impact on the prices of agricultural importables is likely to be smaller, and perhaps close to neutral, with the indirect effects offset in substantial part by the direct effects due to lowered price and quantitative import barriers. The net effect probably would be to increase relative agricultural prices, but with intra-agricultural prices moving to favor exportables and the producers of such exportables. There also might be some accompanying increases in price fluctuations due to the integration into world markets.

Cross-country consideration of agricultural supply responses to such policy changes suggests that the short-run response in aggregate agricultural production is likely to be fairly small, concentrated in exportables, and less important than the price changes in affecting agricultural income. The longer-run effects are likely to depend substantially on infrastructural investments, but -- if those are allocated rationally with regard to relative rates of return -- they are not likely to be concentrated in the more marginal rural areas. Therefore the poor in such areas are likely to benefit substantially from such investments only if they migrate.

Cross-country investigation of the impact of World Bank-supported adjustment programs on labor markets and on the social sectors suggest that there is little evidence of much impact, though there is some evidence of positive effects on rural income growth and negative effects on some dimensions of longer-run human capital investments. Such results are much less alarmist about the deleterious effects of adjustment programs on the rural poor than have been the claims of some, such as Cornia, Jolly and Stewart (1987, 1988). In fact, they are consistent with some short-run improvements in the position of the rural poor, though to what extent is not clear because it is not clear from this study to what extent the rural poor share in the growth in rural income associated with the adjustment program. However, these results raise the question about whether the long-run benefits for the rural
poor from past adjustment programs are as large as might be desirable.

The three country case studies reflect more in-depth examination of particular experiences, the first of which for a DMC and the other two for other developing countries. (1) The analysis of poverty reduction with adjustment in Indonesia between 1984 and 1987 suggests the real world possibility of substantial reduction in poverty at the same time that a major adjustment program is undertaken. The headcount measure of the household share living in poverty fell from 33% to 22% during this period, primarily reflecting substantial drops in the proportions living in poverty in rural agricultural labor and self-employed households. These falls, in turn, reflected largely average real consumption increases in these sectors, though there also was some impact of redistribution favoring the poorer households. These reductions in rural poverty coincident with a major adjustment program reflect (i) favorable initial conditions due to almost two decades of growth and poverty reduction so that momentum was relatively easy to maintain and some earlier investments were increasing their payoffs, (ii) increased prices for agricultural exports and other cash crops and increased rural wages, and (iii) maintenance and expansion of governmental policies directed towards the consumption of the rural poor. Certainly this experience suggests strongly that at least in some contexts substantial initial reductions in rural poverty can accompany major macro structural adjustments, though there is some question even in this case about whether there was not too much off a tradeoff between increasing short run consumption versus maintaining investment that will affect consumption in the medium run. How transferable this experience is depends in part on how important the favorable initial conditions are.

(2) The comparative analysis of the Jamaican experience of the mid 1980s suggests very little evidence of short-run negative effects on the income or the human resources of the rural poor, in sharp contrast to the claims of UNICEF about the same experience. (3) The analysis of the Cote d'Ivoire adjustment experience of the early 1980s, however, contrasts sharply with the Indonesian experience in that rural and total poverty is estimated to have increased more rapidly than did mean real per capita income fall. This suggests a combination of (negative) growth and more unequal distribution, the worse of all combinations. This combination occurred despite a positive association between various policy indicators and the relative poverty in various parts of the economy identified by region, urbanization, and economic activity. This is a disconcerting result indeed since it means that at least the third reason noted above for the Indonesian successful combination of poverty reduction with adjustment was satisfied, though perhaps not to the same degree, in the Cote d'Ivoire. The first reason also was at least partly satisfied since the Cote d'Ivoire also had had a sustained period of growth, though it is not clear that there had been the same ongoing poverty reduction as in Indonesia. From Kanbur's (1990) description, however, it seems that the second reason was not so well satisfied in that apparently export crop prices continued to be suppressed somewhat in order to provide governmental revenues. In any case, the juxtaposition of the Cote d'Ivoire and the Indonesian experience serves to reinforce the judgement that the Indonesian poverty reduction with adjustment was indeed impressive and to suggest that it
may not be so easy to duplicate elsewhere.

Section 5.3 Concluding Reflections and General Questions

Most of the poor in DMCs, as in other developing countries, are in rural areas.\(^76\) Therefore the question of what is the impact of macro stabilization and adjustment policies on the rural poor is an important one.

As is emphasized several times in this paper, however, it also is a difficult one to which to give general answers, in part because of the complexities inherent in evaluating macro policies since they may have many indirect as well as direct effects that change over time and in part because of the heterogeneity among the DMCs. Therefore careful country-specific analysis is critical for specific evaluation of macro policies.

There are some general questions, however, that may help guide such analysis. First, what are the characteristics of the particular DMC with regard to such phenomena as market development, state monopolies and governmental regulation and how do these characteristics affect the likely impact of macro policies a priori? Second, should a major aim of policy be to change some of these conditions? Even if there are market failures, for example, in the spirit of the quotation by P. Bardhan in Section 2.1., would it be desirable to attempt to coordinate governmental intervention closely with the signals emanating from world markets? Third, exactly who are the rural poor and what are their sources of command over resources? The impact of devaluation on the income of the rural poor, for example, is likely to be much more positive if the rural poor are involved substantially in the production of exportables than if they are concentrated in production of nontraded goods and services. Likewise, changes in social services related to basic health and education are likely to affect the rural poor much more than changes in higher levels of education and in specialized curative health care. Fourth, are there sequencing issues in regard to undertaking macro policies so that they will be most effective? The World Bank (1990b), for example, emphasizes that macro reform should be undertaken first where the distortions are greatest, which is likely to be with regard to stabilization in developing countries in which the macro imbalances are acute. It is not clear that this is the best rule. It would seem better to state that policy changes should be undertaken where the rate of return (in terms of the country's objectives) to the resources devoted to the policy change are highest, which may not be where the distortions are greatest. It also is not clear that in most of the DMCs the greatest distortions are the macro imbalances on which the World Bank (1990b) focuses. But the question of policy priorities still needs to be addressed. Fifth, how critical are infrastructure improvements and maintenance in improving the command over resources of the rural poor? Are they critical in particular cases, as Binswanger (1989) seems to argue for India? Sixth, what is the right balance

---

\(^76\)In fact, from a broader perspective, most of the poor in the developing countries are in rural areas of Asia.
between buffering the rural poor from short-run macro constrictions that often are part of stabilization programs and the initial stage of adjustment programs (as apparently Indonesia did quite successfully in the mid 1980s) and investments that affect the longer-run command over resources of the rural poor? Seventh, what are the activities in which the government, given the objectives of a particular DMC, has a comparative advantage? How can government activities be made more responsive to changing circumstance and less captive to rent-seekers? Eighth, what is necessary to make a macro adjustment program sustainable? The World Bank (1990b) stresses that the program must be credible, which seems plausible, but leaves open the question of how to establish credibility. One of the arguments for sequencing so that the largest distortions are attacked first is that lessening such distortions may be a very visible sign of movement and may increase the probability that longer-run changes in incentives are perceived by private entities. 77 Webb and Shariff (1990) also emphasize that the government should cultivate the "winners" from such an effort (e.g., exporters if there is real devaluation and foreign sector liberalization) so that in the political arena they will provide some counterweight to the "losers" (e.g., those who no longer are obtaining rents from regulations). 78 The pace of macro policy changes -- and, perhaps more importantly, resulting improvements -- also seems critical in establishing the credibility of an adjustment program. Moreover the credibility of the government's efforts also might be strengthened by success in lessening some perceived imbalances in the governmental sector, such as fiscal deficits. Unfortunately, however, these are just speculations, the truth of which is quite difficult to know how to assess. Nevertheless, the extent to which the government succeeds in establishing credibility may be critical to the success of such programs.

---

77 If macro imbalances are a major distortion and an outcome of such imbalances is rapidly changing relative prices associated with inflation, for example, it may be difficult for private entities to discern underlying secular movements in relative prices due to an adjustment program.

78 For example, the government might find it useful to develop export organizations to whom the government could provide information about international markets, but which also would provide a forum for exporters to interact and to develop strategies to protect their interests in policies that encourage exports.
References


84
Economics 28:1 (February), 43-63.


_________, 1987b, "Interhousehold Transfers in Rural India: Altruism or Exchange?" Philadelphia: University of Pennsylvania, mimeo.


_________, 1990, "Do the More Wealthy Save Less?" Bangkok: Thailand Development Research Institute, mimeo.


Cox, Donald and Emmanuel Jimenez, 1939, "Private Transfers and Public Policy in Developing Countries: A Case Study for Peru," (December), Washington, D.C.: World Bank, mimeo.


Kochar, Anjini, 1989, "An Empirical Investigation of Rationing Constraints in Rural Credit Markets in India," Chicago, IL: University of
Chicago, mimeo.


A series of papers written by members of the Department of Economics on topics that do not pertain directly to less developed countries. From time to time documentation for computer programs and other research tools developed by members of the department will be distributed in this series as Special Research Papers and denoted by the letters RPS. A copy of any paper (and/or a reprint of the published version) will be mailed on request. See the order blank for further details.

1984-1990 Research Papers


RP-74**  Roger Bolton, "Multiregional Models: Introduction to a


RP-86** Michael McPherson, "Efficiency and Liberty in the Productive Enterprise: Recent Work in the Economics of Work Organization" in Philosophy & Public
Affairs, Vol. 12, No. 4, Fall 1983.


is Optimally Idle", February, 1988.


** Reprint only available
Center for Development Economics
Department of Economics
Williams College
RESEARCH MEMORANDUM SERIES

A series of papers written by members of the Department of Economics on topics pertaining to the economics of less developed countries. A copy of any paper (and/or a reprint of the published version) will be mailed on request. See the order blank for further details.

1984-1990 Research Memorandum


RM-93* Stephen R. Lewis, Jr., Taxation for Development, Oxford University Press, 1984 (available only through the publisher).


RM-112 Brian Levy, "Transactions Costs, the Size of Firms and Industrial Policy: Lessons from A Comparative Case Study of the Footwear Industry in Korea and Taiwan,"


* No longer available
** Reprint only available
ORDER BLANK
FOR RESEARCH MEMORANDA AND RESEARCH PAPERS

Please send the indicated number of copies of each paper.

| RM-69 | RM-95 | RM-121 | RP-09 | RP-35 | RP-61 | RP-87 | RP-113 | RP-139 |
| RM-77 | RM-103 | RP-17 | RP-43 | RP-69 | RP-95 | RP-121 | RP-147 |
| RM-84 | RM-110 | RP-24 | RP-50 | RP-76 | RP-102 | RP-128 |
| RM-86 | RM-112 | RP-26 | RP-52 | RP-78 | RP-104 | RP-130 |

Place a check mark in appropriate boxes.

Where appropriate, I would prefer the paper _____ reprint_____ version of the papers checked above.

Please send a list of the earlier titles in the Research Memorandum and Research Paper Series and an order blank with which I may request copies._____

My correct mailing address is:

MAIL THIS COMPLETED ORDER BLANK TO THE ADDRESS IN THE TOP LEFT CORNER.