10499

Adjustment Lending Revisited

Policies to Restore Growth

FILE COPY

edited by

**Vittorio Corbo,
Stanley Fischer,
and Steven B. Webb**

A World Bank Symposium

Adjustment Lending Revisited

Policies to Restore Growth

A World Bank Symposium

Adjustment Lending Revisited
Policies to Restore Growth

edited by
Vittorio Corbo, Stanley Fischer, and Steven B. Webb

The World Bank
Washington, D.C.

The findings, interpretations, and conclusions expressed in this study are entirely those of the authors and should not be attributed in any manner to the World Bank, to its affiliated organizations, or to members of its Executive Directors or the countries they represent.

Because of the informality of this series and to make the publication available with the least possible delay, the manuscript has not been edited as fully as would be the case with a more formal document, and the World Bank accepts no responsibility for errors.

The complete backlist of publications from the World Bank is shown in the annual *Index of Publications*, which contains an alphabetical title list and indexes of subjects, authors, and countries and regions. The latest edition is available free of charge from the Publications Distribution Unit at the address in the copyright notice or from Publications, World Bank, 66, Avenue d'Iéna, 75116 Paris, France.

Contents

Preface

The Bank periodically evaluates the effectiveness of its adjustment lending and policy reform programs. These evaluations help update the policy advice the Bank provides and ultimately make adjustment lending more effective. The second Report on Adjustment Lending was presented to the Bank's Board of Executive Directors in April 1990. Its main theme is the link between adjustment programs and restoring growth. As a foundation for the Report, the Macroeconomic Adjustment and Growth Division drew on its ongoing research tasks and added some new research projects. The Report itself summarized many of the findings, but could not discuss all of them nor give adequate attention to the many issues of research methodology that had arisen. Especially when the findings were controversial, it seemed important to have an open discussion of the scholarship that went into the Report.

To provide a forum for such a discussion, we organized a conference on September 13–14, 1990, to present papers describing the background research and to have outside specialists discuss them. We chose experts who enjoy wide respect in their fields and represent diverse opinions on the issues under discussion. Several of them had frequently criticized the Bank's adjustment lending policies. The varied views of the participants stimulated some lively discussions and helped highlight the issues in the Report and the background papers.

To make the research foundations of the Report available for the wider public and to share some flavor of the debates behind them, we are publishing here the papers and the formal discussion of them at the conference. The authors have revised their chapters to take into account points made at the conference, and each chapter is followed by the comments of the discussants. We hope that the papers and discussions will stimulate further research on the issues raised, for most of them remain far from being settled.

We also want to thank all the conference participants for taking the time to revise their contributions and all those who aided in preparing this conference volume. Whitney Watress did the copy editing, and Emily Khine along with Aludia Oropesa, Heidi Zia and the secretarial staff in the Macroeconomic Adjustment and Growth Division prepared the manuscripts for publication. Emily Khine and staff of the PRE Publications Unit did the desktop publishing.

Contributors

Edmar L. Bacha
Department of Economics, Catholic University,
Rio de Janeiro

Robert J. Barro
Department of Economics, Harvard University

Jere R. Behrman
Department of Economics, University of Pennsylvania

Vittorio Corbo
Department of Economics, Catholic University, Santiago
(formerly Country Economics Department, World Bank)

Rudiger Dornbusch
Department of Economics, Massachusetts Institute
of Technology

William R. Easterly
Country Economics Department, World Bank

Stanley Fischer
Department of Economics, Massachusetts Institute
of Technology (formerly Chief Economist and Vice President for Development Economics, World Bank)

Mark Gersovitz
Department of Economics, University of Michigan, Ann
Arbor

Arnold C. Harberger
Department of Economics, University of California
at Los Angeles

Gerald K. Helleiner
Department of Economics, University of Toronto

Miguel A. Kiguel
Country Economics Department, World Bank

Nissan Liviatan
Department of Economics, Hebrew University, Jerusalem

Anne Maasland
Consultant, Cambridge, Massachusetts
(formerly Country Economics Department, World Bank)

Paul Mosley
Institute for Development Policy and Management,
University of Manchester

Dani Rodrik
Hoover Institute, Stanford University

Patricio Rojas
Research Department, Central Bank of Chile, Santiago

Luis Serven
Country Economics Department, World Bank

Klaus Schmidt-Hebbel
Country Economics Department, World Bank

Karim Shariff
The Yale School of Organization and Management,
Yale University (formerly Country Economics Department,
World Bank)

Andrés Solimano
Country Economics Department, World Bank

Frances Stewart
Oxford University

Jacques van der Gaag
Latin America and the Caribbean Country Department III,
World Bank

Steven B. Webb
Country Economics Department, World Bank

John Williamson
Institute for International Economics, Washington, D.C.

Overview

The World Bank has been supporting structural adjustment in developing countries since the late 1940s. Initially, the support took the form of preparing and financing projects, especially in the area of infrastructure. By the late 1970s, however, it had become increasingly clear in many countries that correction of inappropriate policies could make a larger contribution to growth than additional investment could. Thus, when the second oil shock came, the Bank introduced adjustment lending, which provided quick-disbursing balance-of-payments support to assist member countries in implementing a less costly adjustment to external shocks. When commercial lending all but disappeared in the second half of 1982 and the urgency of and pay-off from reform increased, the Bank expanded its use of adjustment lending.

The volume has three main parts. Part I, Adjustment Lending Policy and Effects, contains four chapters that deal with the Bank's experience with adjustment lending and the evaluation of its effectiveness in the medium term. Part II, Macroeconomic Foundations for Sustainable Growth, presents four chapters that address the long-term objective of adjustment lending—the restoration of sustainable and equitable growth. Part III, Agenda for Adjustment Lending in the 1990s, consists of the roundtable discussion, which brings together issues from Parts I and II.

Part I. Adjustment Lending Policy and Effects

In chapter 2, "Adjustment Programs and Bank Support: Rationale and Main Results," Vittorio Corbo and Stanley Fischer review the rationale for Bank financial support for adjustment programs. They conclude their paper with a summary of the main findings of the First and Second Reports on Adjustment Lending (RAL-1 and RAL-2) (World Bank 1988 and 1990). Concerning program design and implementation, the authors distinguish clearly between stabilization—defined as both the short-term measures and the structural reforms needed to sustain stabilization—and structural reforms aimed at improving the allocation of resources and achieving equitable growth. This distinction is especially important in countries experiencing acute macroeconomic imbalances (high fiscal deficits, balance-of-payments crises,

and high open or repressed inflation). In such countries, reforms should start with policy and institutional changes that address the root causes of the acute macroeconomic imbalances.

Only after progress has been made in reducing inflation and the fiscal and balance-of-payments deficits should the country attempt other structural reforms aimed at improving the mobilization and allocation of resources for sustainable and equitable growth. The latter reforms typically address problems with public sector management, trade and domestic competition policies, labor market institutions and regulations, and policies specific to the agriculture, industry, energy, financial, and social service sectors. The appropriate sequence of the sectoral reforms depends mainly on country-specific characteristics. Hence, there is no escape from the need for a good evaluation of the main limitations to economic growth in each adjustment lending country.

The ultimate success of adjustment depends not only on getting the right policies in place but also on getting political support for the reforms. Political support is more likely when the government actively and honestly explains why the economy has problems and how the adjustment program will address them, why this option has been chosen, and how people will ultimately benefit from the reforms. The explanation phase is especially important in countries where many years of crisis and failed reforms have undermined the credibility of reform efforts. (Chapter 5 elaborates on this issue.)

In chapter 3, "World Bank-Supported Adjustment Programs: Country Performance and Effectiveness," Vittorio Corbo and Patricio Rojas assess the effectiveness of adjustment lending. This evaluation requires a comparison of the performance of countries receiving adjustment lending with estimates of how they would have performed without it but with other conditions the same. Estimation of this counterfactual without-adjustment-lending scenario is central to the assessment of the effectiveness of adjustment lending.

The authors review the main approaches that have been used in the literature to assess the effectiveness of reform programs. They recommend and use a variation of the modi-

fied control-group approach. This approach corrects for the self-selection bias that arises because a government's decision to enter into a Bank-supported program depends on its expectation of better performance for the economy. Most importantly, the approach corrects for the effect of external conditions, terms of trade, and availability of foreign financing. Analysis with this approach leads to the conclusion that adjustment lending contributed to faster growth of gross domestic product (GDP) and higher ratios of exports saving to GDP in the latter 1980s in countries that used adjustment lending intensively, starting in 1985 or earlier. On the other hand, the ratio of investment to GDP decreased on average for these countries.

In some quarters it has been claimed that adjustment programs have negative effects on the poor. In chapter 4, "World Bank-Supported Adjustment Programs and Living Conditions," Anne Maasland and Jacques van der Gaag assess the effect of Bank-supported programs on living conditions. The authors identify three basic problems that make this assessment difficult. First, a counterfactual scenario has to be created (as was done in chapter 3). Second, data on the living conditions of the poor are scarce and often unreliable. Third, in most countries only a brief period has elapsed since the adjustment effort was started, whereas many of the distribution effects of adjustment programs are not expected to appear until several years after the program has been put in place. Nevertheless, interim evaluations can be conducted and are necessary to assess the short-term effects of programs on living conditions.

Maasland and van der Gaag found that living conditions, even in the short run, did not appear to have been systematically related to adjustment lending. Furthermore, most long-run indicators of living conditions continued to improve in early intensive adjustment lending (EIAL) countries. The exceptions were school enrollment ratios and the share of public expenditure in the social sectors; the authors observed a reduction in the share of education expenditures as well as a decrease in school enrollment in some EIAL countries. This phenomenon could affect not only the distribution effect of the programs but ultimately, through its impact on the formation of human capital, the long-run prospects for growth.

In chapter 5, "Designing and Implementing Adjustment Programs," Steven B. Webb and Karim Shariff review in detail the experience with the design and implementation of adjustment programs in the last 10 years. They organize the review according to policy area: macroeconomics; government finances and administration; trade; the agricultural, industrial and financial sectors; public enterprises; and the environment. Macroeconomic issues, for instance, are usually handled in conjunction with the IMF, but the World Bank is including its own conditionality in this area with increasing frequency. Agriculture, industrial and financial sector adjustment programs increasingly call for comple-

mentary reforms of institutions and commercial regulations. Another part of the chapter analyzes the way in which the specification of conditions has affected implementation. The chapter concludes with a discussion of how the design and presentation of an adjustment program can build the political support that is essential to sustaining and maximizing the supply response. For instance, moving quickly with reform in the wake of a crisis enhances the probability of political acceptance, because the discomfort of the crisis makes people more willing to try something new. Also, moving quickly makes the dislocations during adjustment more associated in people's minds with the pre-adjustment policies that led to the crisis.

Part II. Macroeconomic Foundations for Sustainable Growth

In chapter 6, "Nominal Anchors, Stabilization and Growth (Some Thoughts on High-Inflation Economies)," Miguel A. Kiguel and Nissan Liviatan use the recent experience of Latin America to explore why, in spite of the potentially high pay-off from successful stabilization, most stabilization attempts in that region have failed. They start their analysis by distinguishing between chronic inflation countries and countries where the high level of inflation is a recent phenomenon. They conclude that it is much more difficult to stop chronic inflation than a sharp inflation with a short history. A chronic-inflation economy develops inflation-mitigation techniques, which make stabilization postponable in the medium run, and therefore less credible. This is one of the sources of the failures of many stabilization programs, in addition to the lack of adequate fiscal adjustment. Even in the successful cases, the stabilization is protracted because of lack of credibility about the resolve of the policy makers to persist with the fiscal effort and the commitment to the nominal anchor of the program, such as the exchange rate or the base-money target.

Chapter 7, "Economic Adjustment and Investment Performance in Developing Countries: The Experience of the 1980s," by Luis Serven and Andrés Solimano, examines the performance and determinants of investment in developing countries. Their central observation, based on a sample of 78 developing countries, is that the rate of investment increased to around 1982, and then took a sharp drop. This overall trend, however, conceals some important variation across regions. The authors examine analytically and empirically how adjustment and reform measures contributed to countries' investment performance, and in particular why the investment response has often been slow and weak. They conclude by pointing out three key reforms that are prerequisites for a vigorous private investment response: macroeconomic stability, adequate provision of infrastructure by the public sector, and sufficient external support for the reform programs.

In chapter 8, "Public Policy and Private Saving," Klaus Schmidt-Hebbel and Steven B. Webb examine evidence from a variety of studies, including two of their own, on the determinants of private saving. Private saving responds mostly to endogenous variables of the economic environment, such as fluctuations and trends of disposable income. Public policy can therefore induce greater private saving mainly indirectly, in the medium and longer term through policies that raise the growth rate. Reducing the government deficit, although it may lead to a partially offsetting decline of private saving in the short run, generally raises total national saving and contributes to macroeconomic stability, which helps restore growth and private saving in the longer term.

Chapter 9, "Endogenous Growth in Developing Countries with Government-Induced Distortions," by William R. Easterly, reviews the endogenous growth literature to study how policies can affect growth. In contrast to the neo-classical models of growth, the endogenous growth models imply that removing policy distortions can raise a country's permanent growth rate, as well as increase the base from which it is growing. Arriving at this intuitive result provides insights into the nature of the growth. One growth model is developed in the chapter, and it shows that large reductions in very high levels of initial distortions have a larger pay-off than either small reductions in large distortions or the elimination of small distortions.

Part III. Agenda for Adjustment Lending in the 1990s

The roundtable discussion of the Agenda for Adjustment Lending in the 1990s was led off by Edmar L. Bacha, Gerald K. Helleiner, and Arnold C. Harberger. Their remarks indicate that adjustment lending will continue as an important component of the Bank's assistance strategy for developing countries but that it will also need to be modified to achieve its goals. The range of policy problems to address with structural adjustment continues to widen as environmental and social concerns come to the fore and as the former socialist countries rebuild their economies. Old problems, such as macroeconomic instability and agricultural stagnation, are increasingly recognized as symptoms of deeper needs for adjustment. Some of these will be addressed with adjustment lending, others by finding ways to support adjustment with more traditional lending instruments.

References

World Bank. 1988. *Adjustment Lending: An Evaluation of Ten Years of Experience.* Policy and Research Series no. 1. Washington, D.C.: World Bank.

———. 1990. *Adjustment Lending: Policies for Sustainable Growth.* Policy and Research Series no. 14. Washington, D.C.: World Bank.

Part I

Adjustment Lending Policy and Effects

Adjustment Programs and Bank Support: Rationale and Main Results

Vittorio Corbo and Stanley Fischer

The World Bank introduced adjustment lending in 1979 to assist member countries to deal with the second oil shock by providing temporary balance-of-payments financing while the necessary stabilization and structural adjustment measures were expected to take effect.[1,2] Adjustment lending[3]—defined as rapidly disbursing, policy-based lending—grew in importance after the onset of the debt crisis in 1982, which both reduced the availability of financing and brought growing recognition of the need for structural reforms by many Bank member countries. By the end of the 1980s it accounted for about 25 percent of total World Bank lending and for well over 50 percent of lending to some heavily indebted countries.

The typical country initiating an adjustment program supported by the Bank—and in the initial phases usually also supported by the International Monetary Fund (IMF)—faces pressing macroeconomic problems manifest as a large fiscal deficit and unsustainable balance-of-payments deficit and, in many cases, as open or repressed inflation. These problems usually stem from a mixture of expansionary demand policies and large external shocks to the real interest rate, commodity prices, the demand for exports and the availability of external financing. Typically, political and institutional weaknesses limit the capacity of the country to respond to the external shocks.

Structural adjustment programs seek to achieve both a *long-term macroeconomic stabilization* and *structural transformation* of the economy by addressing the fundamental causes of the country's economic crisis. Stabilization measures aimed at restoring macroeconomic balance focus on bringing the level of demand and its composition (tradable relative to non-tradable goods) into line with the level of output and external financing. In most cases a reduction in the fiscal deficit and a real devaluation are required to restore the internal and external balance. The longer term structural reforms focus both on creating more appropriate incentives (by deregulating the domestic goods markets,

reforming the public sector, liberalizing the trade regime, removing the constraints on factor employment and mobility, and removing obstacles to saving and investment) and on strengthening institutional elements (including the government's capacity to implement policies and the framework for private sector development).

In countries with acute macroeconomic problems, structural reforms designed to increase efficiency and restore growth, whose own efficiency depends on a predictable macroeconomic situation, should be initiated only when sufficient progress has been made in reducing the macroeconomic imbalances. However, in some cases substantial reform of the operation of public enterprises and the financial system may be needed to achieve stabilization (Eastern Europe and Chile in 1973-75 being good examples). This type of structural reform is undertaken concurrently with the stabilization program. The importance of this sequence—first reforms oriented mainly toward reducing severe macroeconomic imbalances and then reforms aimed at improving the allocation of resources and the restoration of growth—has become increasingly clear with experience. At the same time, the approach has strong analytical underpinnings: macroeconomic instability in the form of high and variable inflation and of balance-of-payments crises reduces the benefits of structural reforms aimed at improving the allocation of resources through changes in incentives—benefits that generally are transmitted through changes in relative prices (Corbo and de Melo 1987; Fischer 1986; and Sachs 1987).

Because reforms undertaken as part of a Bank-supported adjustment program add to the country's indebtedness, they should not be attempted unless there is sufficient probability they will succeed. While structural reforms to improve the allocation of resources initiated before stabilization can turn out to be productive,[4] the weight of the evidence suggests that reforms of this type undertaken in highly unstable macroeconomic conditions typically are unsuccessful. Where

consumers and producers do not believe the reforms will be sustained, that is, the credibility of the reforms is low, current relative prices will temporarily move to the right level, but there will be major uncertainty about their future evolution. The result is that the responses of consumers and producers can destabilize the whole reform effort (Calvo 1989). Country studies have also shown that many of the failures of attempts at liberalization have been the result of the absence or failure of accompanying stabilization efforts (Krueger 1978 and 1984; Papageorgiou, Choksi and Michaely 1990; and Corbo and de Melo 1987).

Periodically the Bank evaluates the effectiveness of the adjustment programs it supports, as well as their design and implementation.[5] It also interacts with the research community in carrying out a continuous research program on different aspects of the economic development problems facing developing countries. From these evaluations, this interaction with the research community and the findings of its research program, the Bank derives lessons for the design and implementation of adjustment lending programs. This paper summarizes some of those findings and lessons.

Stabilization Measures

Stabilization includes restoration of the external (current account) and internal (unemployment) balance, as well as control of inflation. The success rate of stabilization programs in countries that have experienced a prolonged period of high inflation is very poor: typically they make many attempts to stabilize, but success is often only temporary, and longer term advances are elusive (Kiguel and Liviatan 1988). Short-term success can be obtained by a temporary fiscal adjustment with a restrictive monetary policy and/or a fixing of the exchange rate. Longer term success, however, cannot be achieved without enduring reductions in the public sector deficit (broadly defined). In some countries, income policies can also play an important supporting role in stabilizing expectations, braking the inflationary momentum and increasing the political support for stabilization programs (Bruno and Piterman 1988; Dornbusch 1989; Kiguel and Liviatan 1990; and Solimano 1990).

If the country does not undertake the necessary fiscal adjustments, income policies are useless—and may be counter-productive. Fiscal adjustment not only removes the underlying cause of inflation but also helps reduce absorption and thus decrease the non-interest current account deficit toward a level that is compatible with a sustainable level of external financing and interest payments on the external debt. A real devaluation that increases competitiveness is also a key component in the restoration of external and internal balance. If the reduction in absorption is not accompanied by a real devaluation, then the demand for both tradable and non-tradable goods will be reduced. Lower demand for tradable goods contributes directly to a decline

in the non-interest current account deficit. Lower demand for non-tradable goods, without a real devaluation, will reduce the output of non-tradable goods, and unemployment and excess capacity will result (Corden 1981; Dornbusch 1980).

Short-Term and Structural Reforms for Stabilization

Rapid success with stabilization usually requires a mixture of cuts in government spending (especially subsidies), reductions in public enterprise losses, tightening of credit, and tax increases, typically undertaken with existing institutions because there is no time to change them. Frequently central bank losses, which result from the provision of credit subsidies to particular sectors, often through the exchange rate system, are an important source of inflationary pressure that has to be eliminated immediately.

Structural reforms are needed to cement the stabilization as well as to lay the basis for the renewal of growth. These reforms include tax measures, substitution of quantitative restrictions with tariffs, reduction in protection, public enterprise reforms and/or privatization aimed at reducing the non-financial public sector deficit, labor market reforms aimed at increasing labor mobility, and changes in the financial system and the central bank's role in it. Generally these reforms need to be phased in, as institutions have to be put in place and regulatory frameworks established (World Bank 1988). Institutional weaknessess and political factors sometimes make it difficult to carry out these structural reforms.

Bank Support for Structural Reforms in Support of Stabilization

When the World Bank begins to support an adjustment program, it expects that the country will undertake a phased program of structural adjustments. While a first structural adjustment loan may support mainly short-term stabilization measures, which the IMF also supports, government actions called for under the terms of the loan typically include the early stages of some longer term structural adjustment. Subsequent loans, often in the form of sectoral adjustment loans, have a strong focus on structural adjustment measures per se. Among these measures are tax reforms, the restructuring of public expenditures, measures to increase the efficiency or to support the privatization of state-owned enterprises, trade reforms, financial market reforms and other sectoral reforms.

Adjustment lending facilitates the phased reduction of the current account. By providing financing to help maintain the level of expenditure, it potentially reduces the short-run adjustment costs to output, employment and consumption. By providing sustained support over a significant period, the Bank hopes to give the country time to undertake reforms with long implementation periods.

Because the availability of additional financing could lead governments to postpone urgently needed reforms by reducing the immediate pressure, structural adjustment loans contain conditionalities. Accordingly, analyses of adjustment lending have carefully examined the rate of implementation of the loan conditions.

Structural Reforms to Improve Resource Allocation, Increase Growth and Reduce Poverty

Once inflation has been reduced in a credible way and progress has been achieved in reducing the non-interest current account deficit, the potential benefits of structural reforms aimed at improving the allocation of resources and achieving sustainable growth are increased. For each country, economic research and country-specific economic and sector work are required to identify the most important distortions hindering the allocation of resources and limiting growth. After the largest distortions have been identified, a central question is the sequencing and speed of reforms, as discussed below.

Sequencing of Reforms

Where there are multiple distortions, identifying the optimal sequence for the reforms is difficult because policy is working in a world of second (or higher) best. Under these conditions, the welfare benefits of the reforms are case-specific and depend on initial conditions and interrelations across markets (Edwards 1989; and the papers in Choksi and Papageorgieu 1986).

Despite the popularity of the concept of sequencing, the notion is to some extent misleading.[6] Some reforms should be undertaken in simultaneous packages rather than in strict sequence. Further, it is necessary to distinguish between the time at which decisions on reforms are taken and the time at which they are implemented.

Some general recommendations on the sequencing of reforms have emerged. First, reforms are best initiated with large reductions in big distortions. Second, in economies with restrictive trade regimes, widespread price controls and domestic practices that constrain domestic competitiveness, reform of the goods market should precede reform of the asset market. In particular, the liberalization of the current account should precede the liberalization of the capital account. This recommendation is based on two arguments. First, the speed of adjustment in the asset markets is much faster than in the commodity markets. To avoid large movements in capital flows and the real exchange rate, controls on capital should limit the flows of capital to the rate at which the goods markets adjust to domestic deregulation and foreign trade liberalization (Frenkel 1982 and 1983). Second, because the prices of assets are determined by the expected present value of future income streams, distortions in the

prices of goods and factors result in assets being traded at distorted prices. The consequence is a misallocation of investment. The potential gains from trade liberalization can also be severely curtailed in countries where private initiative is severely curtailed by regulatory practices, where there are major impediments to labor mobility, and where domestic financial markets are underdeveloped. For such economies, reforms of the regulatory framework and the labor market and development of a domestic financial market should accompany trade reforms.

Speed of Reform

Politicians and some economists are attracted to the gradual implementation of stabilization and adjustment measures. For politicians the attraction lies in the possibility of avoiding painful measures and reducing opposition; for economists, gradual, smooth adjustments appear likely to reduce the overall costs of adjustment. For instance, in considering a tariff reform, politicians phase in the reduction in tariffs to reduce the intensity of opposition from powerful domestic producer interests; economists argue that domestic producers who might in the short run be driven out of business by foreign competition can become internationally competitive given temporary but inexorably declining protection.

Gradual stabilization is unlikely to be a real option when inflation is very high and the balance-of-payments deficit unsustainable. Gradual reductions of inflation have rarely been achieved where the rates of inflation have been in excess of 100 percent per annum, possibly because several forces tend to push inflation higher under those conditions. Further, a government that promises a gradual reduction in the fiscal imbalances over time faces not only a severe credibility problem but also does not achieve much change at the beginning. If, as is typically the case, the country also faces a balance-of-payments crisis, a comprehensive and immediate stabilization package may be the only realistic and credible stabilization option.

Structural adjustment measures that require the development of institutions and appropriate human capital (e.g., financial and tax reform) have to be introduced more gradually, if only because they take time to plan and implement. General economic arguments suggest that, where possible, as in the case of tariffs, distortions be removed quickly so that a reallocation of resources can take place at the right prices sooner rather than later (Mussa 1982; and Edwards 1989). However, given market imperfections, including the possibility of bankruptcy, rapid changes in relative prices can increase the costs of adjustment. Calculation of the right speed at which to introduce changes in relative prices thus requires a balancing of the greater credibility of rapid reforms against the likelihood that rapid changes will increase the costs of adjustment.[7] Adjustment lending can help mitigate the costs of adjustment and thereby sustain an adjust-

ment effort; in addition, the conditionality can increase the credibility of the program.

While rapid stabilization is usually essential, the appropriate timing of the longer term structural reforms depends on country-specific political and economic conditions. Depending on country circumstances, gradual introduction of structural reforms may be preferable to an attempt to remove all major distortions extremely rapidly (Michaely 1987).

Sectoral Reforms

Four areas of sectoral reform are studied here in detail: the public sector; trade/domestic competition; the financial sector; and the labor market. Most reform efforts have centered on these four areas. Of them, labor market reforms have, for political reasons, been very difficult to carry out.

Public sector reform. Public sector reform is at the center of the problems with the macroeconomy and resource allocation in many countries in need of adjustment. It is therefore not surprising that public sector reform is a central component of most adjustment programs. These reforms include macroeconomic measures aimed at reducing the public sector deficit and microeconomic reforms aimed at increasing the efficiency of public sector policies. Fiscal reforms to improve the collection of revenue and to reduce the level and enhance the efficiency of public expenditures, and actions to reduce the losses of public enterprises, are the typical actions included in macroeconomic reform of the public sector. Microeconomic reforms include the reshaping of institutions, restructuring of public enterprises and/or privatization. In many countries public sector reform also includes improvements in the capacity of the public sector to provide basic primary services in health and education.

Reform of trade/domestic competitiveness. Small countries with very distorted trade regimes and non-competitive markets for goods should, over time, reap large benefits from reducing non-competitive practices and liberalizing trade. Although familiar, the arguments against distorted trade regimes bear repetition: they generate a misallocation of resources within import-competing sectors; they tend to repress exports and contribute to socially unproductive rent-seeking activities; and, by reducing competitive pressures, they also tend to slow technical progress. Structural reforms in the trade area aim at reducing the average level and variance of tariff rates, with the ultimate objective of moving toward a more uniform tariff structure. As a practical rule, incentives should not discriminate against export-oriented activities and should promote the development of broadly uniform, across-the-board effective incentives for import-competing activities (Little, Scitovsky and Scott 1970; Corden 1974; Balassa 1976; Thomas, et al. 1991).

On the basis of this analysis, the Bank has supported trade reform as a central element of adjustment programs under both structural and sectoral adjustment loans (Thomas, et al. forthcoming). Bank-supported trade reforms have been phased in gradually.

The recommended reforms of trade policy derive from the standard theory of commercial policy and from the empirical work on commercial policy referred to above. It could be claimed, however, that new developments in trade theory call these recommendations into question and provide a new foundation for differentiated tariffs and, in a more general sense, for an active industrial policy. The new trade theory holds that competition in the international markets is typically imperfectly competitive and that trade is, to a considerable degree, driven by economies of scale rather than comparative advantage (Helpman and Krugman 1985). A policy implication of this theory is that governments should favor industries that generate externalities.

The policy recommendations that seem to follow from the new trade theory—and that are buttressed by the view that well-designed government interventions enhanced growth in East Asian countries—have been strongly criticized on both economic and political-economic grounds. On the economic side, the policy recommendations tend not to be robust to changes in the specifications of the models. On the political economic side, it has been argued that the work on rent-seeking and tariff formation clearly indicates that actual tariff structures are driven more by the pressures of interest groups than by considerations of efficiency.

On the basis of such considerations, Krugman (1987, p. 143) concludes that

> the gains from intervention are limited by uncertainty about the appropriate policies....(and) by the general equilibrium effects that insure that promoting one sector diverts resources from others....Once the expected gains from intervention have been whittled down sufficiently, political economy [factors] can be invoked as a reason to forego intervention altogether. Free trade can serve as a simple principle with which to resist pressures of special-interest politics.

Helpman (1989, p. 213), while showing that the new theories have had several empirical successes in explaining trade phenomena, similarly concludes that "free trade remains a good rule of thumb." (See also Corden 1990; Helpman and Krugman 1989; Krugman 1990; and Srinivasan 1989).

Financial sector reforms. Financial sector reforms aim to improve the efficiency of intermediation and the use of resources, including the allocation of investment. The reforms attempt to reduce distortions in the allocation of credit,

typically in part through the removal of controls on interest rates, with the intention of allowing them to become market-determined. In addition, appropriate information and prudential supervision systems need to be put in place.

Initial conditions play a central role in the design and implementation of financial reforms. If a large proportion of the assets of financial institutions are held at below market rates or are non-performing, then financial reform will create difficulties for existing institutions. In particular, if deposit and lending rates are deregulated simultaneously and free entry into the financial system is allowed, existing banks will be forced to pay market interest rates and will suffer substantial losses, jeopardizing the banking system's solvency and macroeconomic stability. In such cases it may be necessary to allow for a transition phase, during which the lending rates are deregulated first, with deposit rates following only gradually (World Bank 1989). In other cases, where most banks may become insolvent before the financial reforms are implemented, the banks have to be recapitalized, a measure that creates a potential fiscal problem. In countries where domestic financial systems are practically non-existent, the creation of a financial system that provides at a minimum the financing for working capital should be a high priority, although it is not one that can be realized very rapidly. This point could be especially relevant for Eastern Europe (Calvo and Coricelli 1991).

Reform of the financial sector is among the most difficult to undertake, because running the institutions requires a great deal of specific business knowledge and experience. It is also difficult to evaluate, in particular because recapitalized institutions can run for some time without problems becoming evident.

Labor market reforms. Labor market regulations and institutions may play a key role in the efficiency and ultimate success of a structural adjustment program. In countries that require a large real devaluation to accompany policies to reduce absorption, obtaining an initial decline in real wages could make a major difference between a large recession with massive unemployment (as in Chile in 1982) or macroeconomic adjustment without a major change in unemployment (Mexico in 1983-89). Labor legislation or conventions in the form of rigid wage indexation rules are often a major impediment to successful macroeconomic adjustment and the ultimate success of structural reforms aimed at improving the allocation of resources in the goods markets.

Success can also be hindered by rigid labor practices that restrict the mobility of labor. Large severance payments, lack of flexibility in the real wage structure, the attachment of substantial non-wage benefits, such as housing, utilities and education, to employment, and other institutional rigidities to labor mobility are typical impediments to successful

adjustment. These impediments, which need to be addressed early on in the structural adjustment program, in practice are very difficult for a government to tackle.

Promoting Economic Growth

Structural reforms that contribute to the reduction of macroeconomic imbalances and the improvement of resource allocation create the foundation for the recovery of growth (Fischer 1987). Sustained growth generally has four main requirements: stable macroeconomic conditions; an appropriate system of incentives and resource allocation; an adequate level of saving; and efficient institutions to turn saving into productive physical and human investment. Some of the elements necessary for achieving the first two requirements have already been discussed.

Since most indebted countries are likely to be making net transfers abroad rather than receiving net foreign resources, they need to make a major effort to increase national saving. The weight of the empirical evidence suggests that private saving rates are not very sensitive to policies and, in particular, to interest rates (Giovannini 1985; and Schmidt-Hebbel, Webb and Corsetti 1990). However, negative real interest rates probably discourage saving—certainly they reduce the efficiency of financial intermediation—and encourage capital flight. Private saving rates are very sensitive to the economic cycle as a result of consumption smoothing. If there is no leakage through lower private saving, public saving can contribute to an increase in national saving. Empirical evidence presented in Corbo and Schmidt-Hebbel (1991) shows that public saving can make a major contribution to an increase in national saving (see also Summers 1985). The evidence on saving again highlights the central importance of a fiscal balance.

The last factor—an increase in the rate and efficiency of private investment—is much affected by a stable macroeconomic framework and clear and predictable tax rules and property rights (Rodrik 1989; and Serven and Solimano 1991a and 1991b). Economists have long expressed a belief that economic policy and the investment rate are major determinants of economic growth. However, it is only very recently that models have been able to capture the links among policy, investment and long-term growth. The new endogenous growth literature, pioneered by Romer (1986 and 1990) and Lucas (1988), has created a class of theoretical models in which economic policy can affect investment, the accumulation of human capital, innovation and resource allocation in ways that alter long-run, steady-state rates of growth. The ideas underlying these models—economies of scale, externalities and public goods—and the argument that the removal of distortions promotes growth have been familiar for a long time and are the foundation of over three decades of World Bank programs. At a minimum,

the new models provide a framework that may improve understanding of the growth-promoting policies that have been suggested and implemented in the past (Easterly and Wetzel 1989). Possibly they will also improve the quality of growth-promoting policies in the future.

This literature highlights a number of channels through which public policies can affect growth. Recent World Bank papers by Arrau (1989), Romer (1989) and Rebelo (1990) show that promoting the accumulation of human capital, for example, by providing adequate nutritional levels and basic educational skills and by investing in research and development, can foster growth. Along these lines, Becker, Murphy and Tamura (1990) show that economies may become stuck in a poverty trap—a situation where low income and low levels of human capital create incentives for high population growth and low investment in human capital that perpetuate the state of poverty. Policies that stimulate investment in human capital can break the economy out of this stagnant situation.

The new models also stress the importance of trade, fiscal and financial policies, a confirmation of earlier empirical work. The World Bank has been at the forefront of empirical studies of trade policy and growth. In addition to large multi-country case studies, recent work by Feder (1983), Balassa (1985), Easterly and Wetzel (1989), de Melo and Robinson (1989), Nishimizu and Page (1991), Dollar (1990), and Levine and Renelt (1990) has carefully examined the cross-country evidence on trade policy and growth. This empirical work indicates that, after adjusting for factor accumulation, countries with more open economies had higher rates of growth.

Governments are capable of policies that enhance growth and also of policies that hinder it. In Easterly (1990) and Barro (1990), it is shown that governments may promote positive growth effects by providing essential public goods, and they may create negative growth effects by wasting funds on worthless projects and bloated bureaucracies or by imposing taxes and regulations that distort decisions on saving and investment. It is thus necessary to conduct a detailed study of the composition of government expenditures and the structure of taxes to evaluate the effects of any country's fiscal stance on growth. The likely finding will be that higher government consumption has a negative effect on growth. However, the complexity of the relationship between fiscal policy and growth is borne out by recent empirical work in Levine and Renelt (1990). They find that broad macroeconomic indicators of fiscal policy are not robustly related to growth in a cross-section of countries.

The role of financial policy in growth has also been the focus of World Bank scrutiny. Gelb (1989) and Easterly and Wetzel (1989) present preliminary evidence suggesting that, after controlling for factor accumulation, financial deregulation from severely distorted initial positions has a positive effect on growth.

Alleviation of Poverty

The ultimate objective of Bank lending is to contribute to economic development and the eradication of poverty. Indeed, the reduction of poverty is the central objective of most Bank country assistance. The strategy to reduce poverty enunciated in the 1990 *World Development Report* (World Bank 1990b) has two components: first, it encourages broad-based economic growth and in this way promotes the use of the poor's most abundant asset, labor; and second, it attempts to improve the provision of social services to the poor—especially primary education, social infrastructure and basic health care. The second component is desirable not only for its own sake but also because it enhances the productivity of the poor. In addition, the *World Development Report* recommends the adoption of targeted interventions to reach those people such as the elderly and those living in especially poor regions who are not helped by the basic two-part strategy.

Adjustment from an unsustainable economic situation, following policy mismanagement or adverse external shocks, often has significant short-run social costs. The poor, who already have low levels of welfare, may find it very difficult to absorb the short-term losses. Therefore, adjustment programs also include an assessment of the short-term effects of policies on the poor as well as specific measures to protect them during the transition (Maasland and van der Gaag 1990).[8]

Attention to the impact of adjustment on the poor is not only desirable in its own right, but it also helps assure the sustainability of adjustment programs. Whereas, as a logical matter, the costs of adjustment should be calculated by comparing the economic performance with adjustment against the likely outcome without adjustment, the politically relevant perceptions are usually based on a comparison of the post-adjustment outcomes with the (typically unsustainable) pre-adjustment situation.

Why Is World Bank Support Needed?

If the results of the reforms are as favorable as the World Bank claims, why do countries require financial support from the Bank to undertake them? The answer is that even very beneficial reforms may have important transitional adjustment (and distributional) costs that could make their implementation difficult. At a time when countries are restricted from borrowing in the international capital markets, Bank lending, conditional on the implementation of a program, can make an important contribution to the sustainability and ultimate success of the reforms by reducing the need to cut expenditures and imports while the reforms are being implemented.

As to the rationale for balance-of-payments support for the different types of reforms discussed above, in the case of public sector reforms, quick- disbursing balance-of-payments

support can contribute to temporary financing of the budget deficit while the structural reforms of the revenue system and of government expenditures are being put in place. Since large budget deficits typically underlie current account deficits, these fiscal reforms usually also make a direct contribution to a sustainable reduction in the current account deficit.

In the case of trade reforms, balance-of-payments support can make an important contribution to the financing of a transitory increase in imports while the reforms take time to result in increased exports. Since people expect this difference in response times, the availability of financing can also contribute to the credibility and sustainability of the reforms. External financing can further help bridge some of the short-term adjustment costs incurred in industries that need to restructure or to disappear altogether. Similarly, reductions of distortions in the goods markets that are likely to be beneficial in the long run can result in temporary unemployment of resources. The costs of this unemployment can be reduced through adjustment lending.

In the case of financial sector reforms, balance-of-payments support can contribute to financing transitory increases in government expenditures as a result of the recapitalization of banks and the reduction in taxation of financial intermediaries.

In each case, the World Bank's financial support for adjustment programs can cushion some of the short-term adjustment costs and in this way contribute to their sustainability and ultimate success. Furthermore, to the extent the Bank brings its expertise to bear, its lending helps member countries to design and implement more effective programs and, in this way, to adjust more successfully.

For the Bank itself, successful adjustment programs help restore a country's growth and improve its creditworthiness. Furthermore, the benefits of project lending are severely curtailed in highly distorted economies, and adjustment lending can therefore contribute to the success of project lending. Indeed, with distorted incentives, increased investment financing may increase capital accumulation in the "wrong" activities, a situation that exacerbates the misallocation of resources. In the extreme, taking into account the need to service the debt, inefficient investment could even make the country poorer.

Main Conclusions of RAL-1 and RAL-2

As noted, two recent comprehensive evaluations of the Bank's experience with adjustment programs are discussed in RAL-1 and RAL-2 (World Bank 1988 and 1990a). The main conclusions are summarized below.

RAL-1

The main conclusions of the first report are as follows.

Economic performance. Adjustment lending was moderately successful in improving aggregate economic performance. Despite still more serious shocks, the 30 countries that received adjustment loans before 1985 on average had higher rates of growth than did the 63 that did not receive the loans. Performance in the 12 countries with three or more adjustment loans before 1987 and in countries that were substantial exporters of manufactured goods was even better. Adjustment lending appeared to have been relatively less successful in the highly indebted countries and in Sub-Saharan Africa. Detailed country studies corroborated the statistical findings. The report cautioned, however, that the conclusions were tentative because it was difficult to isolate the effects of adjustment lending from the effects of the initial conditions and external shocks.

Implementation of conditions. The overall rate of implementation of conditions was good, with the likelihood of implementation greater where the conditions were spelled out precisely in the loan agreement. In a sample of about 50 adjustment loans to 15 countries, 60 percent of the conditions were met fully during the loan period and another 24 percent were substantially fulfilled.

Adequacy of external financing. Although the sudden cut-off of external financing made some type of adjustment essential, at the same time orderly adjustment required adequate external financing. In some countries unanticipated underfunding of the program reduced or delayed the benefits. In some instances, access to external adjustment assistance simply delayed implementation of adjustment measures.

Commitment to the reform program. The governments that "owned" the program from the start sustained their commitment to reforms the best. Although international agencies often assisted in preparing the programs, the governments were convinced of their own accord that the operations were the most appropriate way to address the problems their countries faced.

RAL-2

The main conclusions of the second report are as follows.

Aggregate effects of the structural reforms. Countries that adopted adjustment programs on average grew faster than did other countries. After adjusting for the effects of initial conditions, external shocks and the amount of external financing, the countries that initiated full-fledged adjustment programs (called early-intensive adjustment lending, or EIAL, countries) experienced a larger increase in the average rate of GDP growth than did other countries. In some of these countries—such as Nigeria, the Philippines,

Malawi, Côte d'Ivoire and Mexico—growth was, however, slower than their country characteristics predicted. In other countries—such as Korea, Mauritius, Morocco, Ghana and Thailand—the programs the Bank supported appear to have stimulated growth by more than the initial conditions, external shocks and external financing suggested. Exports in constant prices as a share of GDP in constant prices increased substantially in the EIAL countries, both before and after adjusting for other factors.

The picture was less positive in the case of investment. After adjusting for the same factors, investment fell on average as a share of GDP in the EIAL countries. At the same time, it seems that the relative efficiency of investment in EIAL countries must have risen in that they achieved higher growth with less investment.

The decline in investment was found in both the public and private sectors. Often a decline in public investment was desirable since its level was unsustainable and some of it had been misdirected. Nevertheless, in the countries that had made major progress in reducing their macroeconomic imbalances, distortions and institutional weaknesses, resumption of public investment in infrastructure was important to stimulating private investment and restoring growth. The reduction of private investment in the initial years of an adjustment program was predictable because incentives were being changed and the credibility of the program was building.

The counterpart of the temporary decline in the investment ratio was that adjusting countries were able to boost higher private consumption more than they might have otherwise. This situation should have helped sustain the reforms.

Need for a supportive macroeconomic environment. A stable macroeconomic framework contributes to the success of structural adjustment in every major area of the economy. Adjustment programs had a higher failure rate when a stable macroeconomic framework was not in place, even when the adjustment package focused mainly on microeconomic and sectoral policies. Based on experience, a country that starts with high inflation and a large current account deficit initially should focus its structural adjustment program on the reduction of inflation and the current account deficit. The resultant improved macroeconomic situation—a reasonably low and predictable rate of inflation, appropriate interest rates, a competitive and predictable real exchange rate, public sector saving rates compatible with the resource mobilization requirements of the program and a balance of payments that is perceived as viable—will support the adjustment program.

The effect of adjustment on poverty and living conditions. Adjustment to adverse external shocks or the effects of previous policy mismanagement inevitably carries some short-run social costs. The poor who lose from adjustment suffer greatly since they are already at a subsistence level. Although the situation of the poor during adjustment offers no reason for complacency, the report did not find evidence that adjustment lending was associated with an increase in the overall misery of the poor. To the contrary, orderly adjustment supported by Bank lending seems to have been less costly for most of the poor and for the general populace than disorderly adjustment without Bank support was.

The changes in the socioeconomic indicators of living conditions do not appear to have been systematically related to adjustment lending. The rate of growth of private consumption in the EIAL countries increased in 1985-86 in total and on a per capita basis in comparison with other country categories and when controlling for other factors. Current consumption appears to have been protected—relative to that in other countries—by a reduction in investment expenditures. Other short-run indicators, such as nutrition and immunization, also improved in the EIAL countries. The long-run indicators of living conditions, such as infant and child mortality, continued to improve in most countries, with or without adjustment lending. However, the poor quality and the aggregate nature of the data do not permit unqualified conclusions on these issues.

While the socioeconomic indicators showed continued improvement, the share of central government expenditures for the social sector fell slightly on average in the countries with adjustment lending. Per capita social expenditures by the central governments also declined in some adjusting countries. It is possible that part of the impact of the declines in health and education expenditures on lower income groups was offset by increased contributions from local governments and better targeting of government spending. The declines in education expenditures were accompanied in the EIAL countries by drops in the ratios of primary school enrollment. To prevent declines in their socioeconomic indicators, most adjusting countries need to raise the level of expenditures for the social sector targeted toward the poor.

Since adjustment is taking longer in most countries than originally expected, recent adjustment operations supported by the Bank include more detailed analyses of the social impacts of adjustment programs and more measures to alleviate the short-run costs of adjustment to the newly unemployed and the poor. Such measures include a reallocation of social expenditures toward services used by the poor, severance payments and retraining for newly unemployed workers, as well as for public works and employment schemes for unskilled workers. In some cases, several targeted interventions have been assembled into multi-sector compensatory programs.

Raising efficiency. Greater increases in the efficiency of investment can reduce the need for more saving. Distortionary

policies, such as trade restrictions and financial repression, constrain the efficiency of investment and thus the rate of growth for a given level of investment. Removing these distortionary policies does the reverse: it increases the efficiency of investment and the growth rate of GDP for a given level of investment. Furthermore, analysis indicates that reform efforts must reach a critical mass to be effective: small decreases in extremely high distortions do not have much effect on growth. To have significant pay-offs, reform programs usually must focus on large reductions in the large distortions.

Increasing investment. To sustain adjustment and restore growth, countries must not only reduce distortions, they must also create the conditions for an eventual increase in investment. Some countries, especially in Africa, need more domestic saving and external financing to reach investment levels consistent with the restoration of growth. In many countries, however, the prevalence of capital flight indicates that the stagnant rate of investment is the result of inadequate demand for investment rather than the unavailability of saving. In highly indebted countries, the debt overhang often creates uncertainties about the sustainability of the balance of payments and macroeconomic stability and thus may thwart the recovery of private investment. Reductions in debt and debt service in the context of adjustment programs can help reduce these uncertainties.

The eventual recovery of investment requires an appropriate and credible economic environment. Investment does not respond well when investors, foreign and domestic, doubt the government will sustain its reforms and when legal and bureaucratic impediments are left untouched. Private investors often wait before making irreversible investment decisions, keeping their assets elsewhere. Providing appropriate public investments that complement private investment, and persuading some private investors to commit themselves, usually help overcome the doubts of the majority.

There is, however, no simple way to bring this situation about. The obvious remedy of specific investment subsidies is likely to be expensive and at odds with the objectives of leaving decisions to market forces and restoring fiscal balance. An appropriate strategy for increasing investment would contain four elements:

• The establishment and maintenance of macroeconomic stability, including a predictable and competitive real exchange rate, small budget deficit and low rates of monetary growth and inflation

• Removal of the legal and bureaucratic impediments to investment by domestic and foreign firms and the provision of clear rules for taxation, property rights and the regulation of production and trade

• Expansion of public investment in a manner complementary to private investment

• Assurance of sufficient external financing to support a sound program in both the medium and the long terms. In highly indebted middle-income countries committed to sustaining a reform effort, the Brady initiative and other debt reduction schemes should help improve the viability and credibility of adjustment programs.

Raising saving rates. To sustain desirable rates of investment and growth, the saving rates in most adjusting countries have to increase, especially in the many African countries that started the 1980s with very low rates. The most effective way to increase saving in the initial years of an adjustment program is to raise public saving. Private saving, because it is responsive mainly to an increase in the rate of growth of GDP, starts to rise after growth gets under way. Once real interest rates are positive, further increases in these rates on deposits and special tax treatment for saving are unlikely to cause any large rise in the rate of saving.

Refinements. The findings of RAL-2 confirm and extend some of the conclusions of RAL-1. The sequencing and packaging of reform measures are crucial aspects of adjustment programs. In countries that start with high inflation and a large current account deficit, the first step is to implement stabilization measures. Structural reforms aimed at maintaining macroeconomic balance are emphasized next. Sectoral reforms are sequenced in a way that takes into account the linkages among sectors. For instance, trade liberalization is likely to improve efficiency more if accompanied by measures to improve the functioning of the domestic markets for goods and credit, provide needed infrastructure and reduce the controls over domestic investment and the impediments to the mobility of labor. In some low-income countries, barriers to the integration of the domestic economy—poor roads, inappropriate infrastructure for domestic transport, lack of domestic financial markets and so on—are major constraints on economic growth that should be tackled early.

The data on conditionality and implementation from the much expanded sample of loans approved in FY79-88 showed most of the same patterns found in RAL-1, as well as some new ones. Progress with implementation was measured by the share of conditions in the loan agreements that were implemented by the time of release of the final tranche. Of all conditions in the loan agreements in the sample, 84 percent were implemented at least substantially—better than the rate cited in RAL-1—and 66 percent were implemented fully or more than fully by the time of release of the final tranche.

Implementation rates increased during the 1980s, both for countries that had received adjustment loans since the early 1980s and countries that started more recently. For the

loans in the sample whose final tranche was released in FY89, i.e., since the first report, 99 percent of the conditions were implemented at least substantially, and 80 percent of the conditions as originally written were implemented fully or more. In the rare cases where a condition as originally written did not seem necessary, the Bank waived the condition, with approval from the Board. If the one loan in the sample for which this situation occurred in FY89 is excluded, the proportion of fully implemented conditions rises from 80 percent to 88 percent. Essentially, the final tranches were released only when all conditions in the loans were at least substantially fulfilled.[9]

As to political economic factors in the implementation of adjustment programs, governments were more frequently able to develop and maintain political support for structural adjustment when that need was taken into account in the design of the program and when the government was active in explaining the source of the problems addressed by the program, how it planned to tackle them, why this option was the best one and how people would benefit from the new policy environment. Mobilization of beneficiaries to become political supporters usually followed. While technical considerations sometimes caused unavoidable delays in program implementation, more prompt implementation almost always increased the chances of political support. Awareness of the economic problems that motivated the initial decision for reform was strongest at the beginning, with the authorities then having maximum latitude for reform. Support for sustaining the new status quo then developed as the structural reform paid off in growth and higher living standards.

A final conclusion of the two reports is that adjustment programs need to give greater attention to reforming and developing institutions in several areas: in Sub-Saharan Africa, the agricultural sector; in many countries, financial sector and fiscal management; and in almost all countries, public enterprises. Although adjustment programs often call for a reduction in the resources going to the public sector, it is equally important to strengthen public institutions through improved policies, organization and management. Institutional development is essential for both the implementation and ultimate success of many of the reforms the Bank supports.

Concluding Remarks

In the last 10 years, countries have been struggling to adjust policies and institutions in response to their poor economic performance. Design and implementation of adjustment programs are not easy tasks. Nor are they tasks that can be carried out successfully unless each program is tailored to the specific circumstances of the adjusting country. Nevertheless, some lessons have emerged from the analysis of adjustment problems and programs that are of much interest

to policy-makers in developing countries. These lessons have also been incorporated in Bank-supported programs. They are repeated here.

In countries experiencing acute macroeconomic imbalances manifest as high fiscal deficits, balance-of-payments crisis and high open or repressed inflation, adjustment should start with policy and institutional reforms that deal in a credible and permanent way with the large public sector deficit that is the ultimate cause of the macroeconomic crisis. Once enough progress has been achieved in reducing inflation and the fiscal and balance-of-payments deficits, other structural reforms aimed at improving the allocation of resources and achieving sustainable and equitable growth can be attempted. Among the latter reforms the most common address: the public sector; trade/domestic competition; and the financial sector. Reform of the labor market, although attempted in many cases, has not been as common as it should be.

What impact can the Bank's adjustment lending have on borrowing countries? The Bank can assist adjustment by providing both financing and policy advice. Furthermore, the Bank can help countries mobilize other sources of financing. In RAL-2 it was found that, after adjusting for non-program factors, adjustment lending had a positive effect on growth and on export and saving rates in constant prices. However, it had a negative effect on the investment ratio.

With respect to the effects of adjustment lending on social indicators, the evidence shows that changes in living conditions in the short run do not appear to have been systematically related to the presence or not of adjustment lending.

The rate of implementation of programs rose during the 1980s both for countries that had received adjustment loans since the early 1980s and for countries that had started more recently. The rates were lower for countries with higher rates of inflation and for countries that suffered higher negative external shocks. Successful stabilization and appropriate adjustment to external shocks (including contingency financing) helped to increase the implementation rate of programs.

Both RAL-1 and RAL-2 underline the importance of a good diagnosis of the development problems facing a country and of the need to build a consensus around the adjustment program. While external financing can help implementation of a government-owned program, ultimately it will not be effective if the government is not convinced of the need for adjustment. To be successful, the government has to own the program.

Governments have more frequently been able to develop and maintain political support for structural adjustment when they designed the programs with this aim in mind and were active in explaining the sources of the problems addressed by the program, how they planned to tackle them, why this option was the best one, and how people would benefit from the new policy environment. Mobilization of beneficiaries

to become political supporters usually followed. While technical considerations sometimes caused unavoidable delays in program implementation, more prompt implementation almost always increased the chances of political support. Awareness of the economic problems that motivated the initial decision for reform were strongest at the beginning, at which time the authorities had maximum latitude for reform. Support for sustaining the new status quo then developed as the structural reform paid off in growth and higher living standards.

Although adjustment programs often called for a net reduction in the resources going to the public sector, it was equally important to strengthen public institutions through improved policies, organization and management. Institutional development was essential for both the implementation and ultimate success of many of the reforms the Bank supported.

The ultimate success of the adjustment programs depended not only on getting the right policies in place but also on increasing investment, including efficient public investment, and saving and growth. Public policy has contributed much to these objectives by mobilizing saving and providing a macroeconomic framework supportive of investment and efficient growth.

Notes

1. When the first draft of this paper was written, Stanley Fischer was vice president, Development Economics, and chief economist of the World Bank. The authors are grateful to Edmar Bacha, Bela Balassa and John Williamson for their comments and to William Easterly, Ross Levine and Klaus Schmidt-Hebbel for their comments and suggestions.

2. For the origins of adjustment lending, see Stern (1983).

3. Adjustment lending is sometimes also defined as balance-of-payments support lending; since all capital inflows support the balance of payments, the emphasis is more accurately placed on the rapidly disbursing feature.

4. For instance, *some of the reforms undertaken before stabilization in Mexico appear to have been long-lasting.*

5. Two recent comprehensive reviews are presented in the first and second Reports on Adjustment Lending (World Bank 1988 and 1990a).

6. Fischer and Gelb (1990) develop this argument in the context of the reform of socialist economies.

7. Webb and Shariff (1990) also discuss some of the political-economic aspects that affect the speed of reforms.

8. Attention to the effects of adjustment measures on the poor increased during the 1980s as it became clear that adjustment would not be effected quickly.

9. Another interesting point brought out in RAL-2 is that some countries began implementing their structural adjustment program before the adjustment loans became effective and frequently broadened their coverage after disbursement ended.

References

Arrau, P. 1989. "Human Capital and Endogenous Growth in a Large Scale Life-Cycle Model." World Bank, Policy, Planning and Research (PPR) Working Paper #342. Washington, D.C.

Balassa, B. 1976. "Reforming the System of Incentives in Developing Countries." *World Development* 3(6):365-82.

———. 1985. "Exports, Policy Choices, and Economic Growth in Developing Countries after the 1973 Oil Shock." *Journal of Development Economics* 18:23-35.

Barro, R. 1990. "A Cross-Country Study of Growth, Saving, and Government." National Bureau of Economic Research (NBER) Working Paper No. 2855. Cambridge, Mass.

Becker, G., K. Murphy and R. Tamura. 1990. "Economic Growth, Human Capital and Population Growth." *Journal of Political Economy.* Supplement to vol. 98(5)(part II):S12-37.

Bruno, M., and S. Piterman. 1988. "Israel's Stabilization: A Two-Years' Review." In M. Bruno, et al. (eds.), *Inflation Stabilization.* Cambridge, Mass.: MIT Press.

Calvo, G. 1989. "Incredible Reforms." In G. Calvo, et al. (eds.), *Debt, Stabilization and Development.* Oxford, Eng., and Cambridge, Mass.: Basil Blackwell.

Calvo, G., and F. Coricelli. 1991. "Stagflationary Effects of Stabilization Programs in Reforming Socialist Economies: Enterprise-side vs. Household-side Factors." World Bank, Policy, Research and External Affairs (PRE) Working Paper. Washington, D.C.

Choksi, A., and D. Papageorgieu (eds.). 1986. *Economic Liberalization in Developing Countries.* Oxford: Basil Blackwell.

Corbo, V., and J. de Melo. 1987. "Lessons from the Southern Cone Policy Reforms." *World Bank Research Observer* 2(2):111-42.

Corbo, V., and K. Schmidt-Hebbel. 1991. "Public Policies and Saving in Developing Countries." *Journal of Development Economics* 33:89-115.

Corden, M. 1974. *Trade Policy and Economic Welfare.* Oxford: Clarendon Press.

———. 1981. *Inflation, Exchange Rates, and the World Economy.* 2d ed. Chicago, Ill.: University of Chicago Press.

———. 1990. "Strategic Trade Policy. How New? How Sensible?" World Bank, Policy, Research, and External Affairs (PRE) Working Paper #396. Washington, D.C.

de Melo, J., and S. Robinson. 1989. "Productivity and Externalities: Models of Export-Led Growth." Manuscript. World Bank. Washington, D.C.

Dollar, D. 1990. "Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs." Manuscript. World Bank. Washington, D.C.

Dornbusch, R. 1980. *Open Economy Macroeconomics.* New York: Basic Books.

———. 1989. "Credibility and Stabilization." Manuscript. Massachusetts Institute of Technology. Cambridge, Mass.

Easterly, William R. 1990. "Endogenous Growth in Developing Countries with Government Induced Distortions." World Bank. Washington, D.C.

Easterly, William R., and D. Wetzel. 1989. "Policy Determinants of Growth. A Survey of Theory and Evidence." World Bank, Policy, Research, and External Affairs (PRE) Working Paper #343. Washington, D.C.

Edwards, S. 1989. "On the Sequencing of Structural Reforms." National Bureau of Economic Research (NBER) Working Paper #3138. Cambridge, Mass.

Feder, Gershon. 1983. "On Exports and Economic Growth." *Journal of Development Economics* 12:59-74.

Fischer, S. 1986. "Issues in Medium-Term Macroeconomic Adjustment." *World Bank Research Observer* 1(2):163-82.

———. 1987. "Economic Growth and Economic Policy." In V. Corbo, et al. (eds.), *Growth-Oriented Adjustment Programs.* Washington, D.C.: International Monetary Fund-World Bank.

Fischer, S., and A. Gelb. 1990. "Issues in Socialist Economic Reforms." World Bank, Policy, Research, and External Affairs (PRE) Working Paper # 565. Washington, D.C.

Frenkel, J. 1982. "The Order of Economic Liberalization: A Comment." In K. Brunner and A. H. Meltzer (eds.), *Economic Policy and World of Change.* Amsterdam: North-Holland Publishing Co.

———. 1983. "Remarks on the Southern Cone." *IMF Staff Papers* (March):164-73.

Gelb, Alan. 1989. "A Cross-Section Analysis of Financial Policies, Efficiency and Growth." Manuscript. World Bank. Washington, D.C.

Giovannini, A. 1985. "Saving and the Real Interest Rate in LDCs." *Journal of Development Economics* (August).

Helpman, E. 1989. "The Noncompetitive Theory of International Trade and Trade Policy." *Proceedings of the World Bank Annual Conference on Economic Development.* 193-216.

Helpman, E., and P. R. Krugman. 1985. *Market Structure and Foreign Trade.* Cambridge, Mass.: MIT Press.

———. 1989. *Trade Policy and Market Structure.* Cambridge, Mass.: MIT Press.

Kiguel, M., and N. Liviatan. 1988. "Inflationary Rigidities and Orthodox Stabilization Policies: Lessons from Latin America." *The World Bank Economic Review* 2:273-98.

———. 1990. "Nominal Anchors, Stabilization and Growth." Manuscript. World Bank. Washington, D.C.

Krueger, A. O. 1978. *Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences.* Cambridge, Mass.: Ballinger Press.

———. 1984. "Problems of Liberalization." In Arnold C. Harberger (ed.), *World Economic Growth.* San Francisco, Calif.: ICS Press.

Krugman, P. R. 1987. "Is Free Trade Passe?" *Journal of Economic Perspectives* 1(2):131-44.

———. 1990. *The Age of Diminished Expectations.* Cambridge, Mass.: MIT Press.

Levine, R., and David Renelt. 1990. "A Sensitivity Analysis of Cross-Country Growth Regressions." Manuscript. World Bank. Washington, D.C.

Little, I., T. Scitovsky and M. Scott. 1970. *Industry and Trade in Some Developing Countries.* London: Oxford University Press.

Lucas, Robert. 1988. "On the Mechanics of Economic Development." *Journal of Monetary Economics* 22:3-12.

Maasland, A., and J. van der Gaag. 1990. "World Bank Supported Programs and Living Conditions." Manuscript. World Bank. Washington, D.C.

Michaely, M. 1987. "Trade Liberalization Policies: Lessons of Experience." Manuscript. World Bank. Washington, D.C.

Mussa, M. 1982. "Government Policy and the Adjustment Process." In J. Bhagwati (ed.), *Import Competition and Response.* Chicago, Ill.: University of Chicago Press.

Nishimizu, M., and J. Page. 1991. "Trade Policy, Market Orientation and Productivity Change in Industry." In J. de Melo and A. Sapir (eds.), *Trade Theory and Economic Reform North, South, and East: Essays in Honor of Bela Balassa.* Cambridge, Mass.: Basil Blackwell.

Papageorgiou, D., A. Choksi and M. Michaely. 1990. *Liberalizing Foreign Trade in Developing Countries: The Lessons of Experience.* Washington, D.C.: World Bank.

Rebelo, S. 1990. "Growth in Open Economies." Manuscript. World Bank. Washington, D.C.

Rodrik, D. 1989. "Policy Uncertainty and Private Investment in Developing Countries." National Bureau of Economic Research (NBER) Working Paper #2999. Cambridge, Mass.

Romer, Paul. 1986. "Increasing Returns and Long-Run Growth." *Journal of Political Economy* 94:1002-37.

———. 1989. "What Determines the Rate of Growth of Technological Change?" World Bank, Policy, Planning and Research (PPR) Working Paper 279. Washington, D.C.

———. 1990. "Endogenous Technological Change." *Journal of Political Economy* 98(5, part 2)(October):S71-102.

Sachs, J. 1987. "Trade and Exchange Rate Policies in Growth-Oriented Adjustment Programs." In V. Corbo, et al. (eds.), *Growth-Oriented Adjustment Programs.* Washington, D.C.: International Monetary Fund-World Bank.

Schmidt-Hebbel, K., S. Webb and G. Corsetti. 1990. "Household Saving in Developing Countries." Manuscript. World Bank. Washington, D.C.

Serven, L., and A. Solimano. 1991a. "Private Investment and Macroeconomic Adjustment: A Survey." *World Bank Research Observer.* World Bank. Washington, D.C. (forthcoming).

———. 1991b. "Economic Adjustment and Investment Performance in Developing Countries: The Experience of the 1980s." Manuscript. World Bank. Washington, D.C.

Solimano, A. 1990. "Inflation and the Costs of Stabilization: Historical and Recent Experiences and Policy Lessons." *World Bank Research Observer* 5(2):167-85. World Bank. Washington, D.C.

Srinivasan, T. N. 1989. "Recent Theories of Imperfect Competition and International Trade: Any Implications for Development Strategy?" *Indian Economic Review* 24:1-23.

Stern, E. 1983. "World Bank Financing of Structural Adjustment." In J. Williamson (ed.), *IMF Conditionality.* Washington, D.C.: Institute for International Economics.

Summers, L. H. 1985. "Issues in National Saving Policy." National Bureau of Economic Research (NBER) Working Paper #1710. Cambridge, Mass.

Thomas, V., et al. 1991. *Strengthening Trade Policy Reforms in Developing Countries.* Washington, D.C.: World Bank.

Webb, S., and K. Shariff. 1990. "Designing and Implementing Adjustment Programs." Manuscript. World Bank. Washington, D.C.

World Bank. 1988. *Adjustment Lending: An Evaluation of Ten Years of Experience.* Policy and Research Series #1. Washington, D.C.: World Bank.

———. 1989. *World Development Report 1989.* New York: Oxford University Press.

———. 1990a. *Adjustment Lending: Policies for Sustainable Growth.* Policy and Research Series #14. Washington, D.C.: World Bank.

———. 1990b. *World Development Report 1990.* New York: Oxford University Press.

Comments

Edmar L. Bacha

There is much to agree with in the paper by Vittorio Corbo and Stanley Fischer. In my role as devil's advocate, however, I will focus my observations on points of disagreement.

Sequencing

The World Bank's doctrine on sequencing for economic reform in developing countries is, first, stabilization, then liberalization (first the markets for goods, then the financial markets), and finally investment and growth. A variant is, first, carry out the macroeconomic adjustments, then the structural reforms, and finally the investment growth.

The Bank's doctrine seems to have resulted from reflection on the economic policy fiascos in Latin America, where such a sequence was not followed. On the one hand, there were the Southern Cone open monetarist experiments of the late seventies—in Argentina, Chile and Uruguay—where (financial) liberalization preceded a balancing of the budget and de-indexation of the markets for labor and goods. These experiments all ended in major financial and economic crises in the early eighties. On the other hand, there were the heterodox expansionary stabilization experiments of the mid-eighties—in Argentina, Brazil and Peru—where price freezes replaced fiscal and monetary adjustment. These efforts all ended recently in price explosions and acute recessions.

The successful stabilization experiences of Bolivia, Israel and Mexico teach that there is more to stabilization than the augmented Phillips curve IS-LM framework. To cope with mega-inflation, major structural reforms must accompany fiscal austerity and the establishment of monetary anchors. In fact, it is arguable that in each of these countries it was the reform-mindedness of the new governments that carried the day for stabilization, rather than their short-term achievements in the fiscal or monetary spheres.

The same observation may apply to the recent liberalization experiments in Eastern Europe—structural reforms are a prerequisite for effective stabilization.

Public Sector Reform

The issue here is how the Bank defines structural reform—it seems to mean only deregulation, privatization and liberalization, i.e., reducing the degree of government intervention in the private markets.

It is easy to agree that such liberalization reforms will be credible only if the macroeconomic environment is stable. To create this environment, however, structural reforms must be initiated in the way the government operates and interacts with private economic agents. The rules of the game of a statist, soft budget economic regime of the Latin American or Eastern European variety are such that all the costs of risk-taking activities tend to be shifted to the government budget, whereas sectoral interest groups appropriate all the benefits. A thorough reform of this system of publicly sponsored private privileges is required if the government is to make ends meet and thus open the way for lasting stabilization.

Thus, when considering the need for a thorough public sector reform, it is not just an improved allocation of resources that is at issue as a prerequisite for effective stabilization. The real goal is to suppress the potential budget deficit that lies behind all the commitments—contingent liabilities, in fact—the government has built over the years with different private groups both inside and outside the government. The need for reforms involving divestiture, deregulation, tax changes, debt consolidation, changed personnel policies, and an incentives-focused administrative framework for the public sector is the context within which a hardening of the government budget constraint, aimed at guaranteeing effective stabilization, needs to be considered. That change in the inflationary policy regime will give a clear sign to the economic agents and create the favorable expectations necessary for stabilization.

Unfortunately, the Bank has emphasized the need for public sector reforms much less than it has emphasized the need for liberalization. It has done so even though, time and again, experience has shown the need for "reregulation" every time a liberal crusade extends beyond its limits. As a consequence, little has been learned about how, in societies where the need for public goods is blatant, to make a public sector more effective. Chile post-1984 seems to be the best example of how to correct the excesses of liberalism without falling prey to inconsequent interventionism. In addition, the positive role that state interventionism played in Taiwan, China and Korea has been little studied, even though these two cases seem to illustrate that "rent-seeking behavior" can be avoided even in closely regulated markets, provided that government regulation is performance-based and subject to a hard budget constraint.

The relative lack of attention to these themes is indicated in the original version of the Corbo and Fischer paper, where

the sectoral reforms chosen for analysis involved goods and factor markets: trade, finance and labor. This selection is almost like performing Hamlet without the prince, in that only a reformed public sector will be capable of dealing productively with the complex issues involved in these sectoral reforms.

Sectoral Reforms

Again, there is much to agree with the authors about the sectoral reforms they discuss. My disagreements center on the following points:

(1) In the case of trade reforms, I do not understand why the authors did not take the conclusions from the "new trade theories" as seriously as they did those from the "new endogenous growth theories." Both sets of theories conclude that carefully designed policy interventions can significantly improve on market-based results because externalities and economies of scale are so pervasive. Rather than presuming that politicians are not ever to be trusted and that if allowed to intervene they will always choose a bad policy course, the economist's conclusion should be that there is much need for research on the design and implementation of policy interventions, including the "political economy" aspects of those interventions.

(2) On the matter of reform of the financial market, the emphasis was on market-oriented reforms under prudent regulation. This position is a big advance over the frequent advice of Bank missions in the field simply to liberalize

interest rates. Still, no consideration was given to the successes of Korea and Taiwan, China, one of which had a closely regulated financial market and the other an entirely government-controlled banking system. Is the Bank prepared to say that these countries would have grown even faster and more equitably had they pursued free banking over the past 30 years?

In the same vein, I presume that government-owned development banks will continue to play a major role in providing financial resources for long-term investment. At the international level, the continuous expansion of the activities of the World Bank clearly shows this presumption is correct. The paper makes no reference to the lessons from development banking that should be incorporated into reforms of the financial market in the future.

(3) With labor markets, the focus was on removal of the institutional impediments to labor mobility, which is fair enough. It should also, however, be recognized that labor markets are more similar to financial markets than to current goods markets. Long-term labor contracts, with tenure systems and the like, are an important characteristic of well-functioning labor markets, as Japan and IBM prove. Perhaps the objective should be better insurance mechanisms than the ones so often legislated into labor contracts. The apparently successful experience of Chile with the privatization of social security is an example that deserves further study; it confirms that, to succeed in removing a bad insurance mechanism, it may be necessary to offer a policy alternative capable of delivering a better service at a smaller cost.

John Williamson

The main thrust of the paper by Vittorio Corbo and Stanley Fischer is a defense of the rationale of the conditions that have been attached to adjustment loans. I agree with most of what the authors say on this topic. Much of it falls under the heading of what, in a phrase I now slightly rue, I have described as the "Washington consensus" (Williamson 1990), hardly surprising given that the World Bank is a central actor in Washington. Where Corbo and Fischer go beyond the Washington consensus, notably in the attention they pay to equity issues, I welcome the evidence that the Bank no longer neglects an area so regrettably ignored by the Washington of the early 1980s.

My one substantive disagreement with Corbo and Fischer concerns their proposition that stabilization should always precede adjustment. It is important that stabilization be achieved promptly and convincingly. However, I join Edmar Bacha in questioning whether it should always precede all

supply-side reforms. Mexico, for one, undertook a great many of those reforms before it achieved stabilization. Although Turkey's initial efforts at stabilization were limited, it was still able to accomplish a massive opening up of its economy. In Eastern Europe, I suspect that successful stabilization will require a greater ability to respond to changed incentives than the centrally planned economies now possess.

The implication is that at least some supply-side reforms should precede stabilization efforts. The principal problem with the Ryzhkov Plan (March 1990) is that it proposes to increase prices in the interest of stabilization before doing anything to change the structure of the economy. Failed stabilizations are not without costs: every failure makes the next attempt more difficult. Economists have so far found very few robust generalizations about the optimal sequencing of economic reform. "Stabilization first," always and everywhere, is another one that does not work.

Rather than dwell on quibbles with the Corbo-Fischer paper, it may be more constructive to explore a complemen-

tary theme: the rationale for the Bank to make adjustment loans at all. There seem to be four such rationales:

(1) *Traditional Bank doctrine.* Traditionally Bank lending took the form of project loans, which had the incidental effect of relieving the foreign exchange and savings constraints. That is, they permitted the financing of a larger current account deficit than would otherwise have been possible. This effect was particularly valuable when the foreign exchange constraint was binding, as the two-gap model explained.

A decade ago many of the Bank's clients fell on hard times. One consequence was a lack of counterpart local currency financing for projects (a problem sometimes aggravated by International Monetary Fund [IMF] conditionality). Those developments increased rather than diminished the borrowing countries' need for foreign exchange (especially in conjunction with the build-up of debt service obligations due the Bank). In many cases the foreign exchange constraint became binding, following a lengthy period when it had not been. Under such circumstances the obvious way for the Bank to serve its clients was to introduce a program of fast-disbursing non-project lending. Doubtless, adherents of public choice theory would also point out that this program kept the Bank in business at a time when its activities might otherwise have been curtailed.

(2) *Traditional Fund doctrine.* The IMF seems to have the paradoxical view that lenders lend to countries to stop deficits rather than to finance them. Actually, the Fund's position is quite rational. Deficits originate from some combination of bad management and bad luck. Whatever their cause, the optimal response is prompt initiation of adjustment, but at a pace sufficiently measured to limit the loss of output during the process. That pace requires financing for the interim deficit, which the IMF aims to provide.

(3) *Support for reform.* From time to time in a developing country a new political team that understands what makes the world tick takes office. Typically the team will include one or two key senior economic officials with experience in the Bank and/or the Fund. The team wants to implement a set of reforms along the lines of my "Washington agenda." These reforms promise long-run benefits—at the expense of short-run costs. Adjustment loans enable the international community to provide a sweetener that will help the reformers retain political support during the difficult and perhaps lengthy period before the reforms start to bear fruit.

(4) *Bribes for reform.* Even after the welcome recent developments in Latin America, Asia and Eastern Europe, the world contains many regimes that most of us would rather not live under. These governments are typically part of the problem rather than the solution. Loans may be used to bribe these governments to get off the backs of their long-suffering citizens.

Which Rationale?

In his early explanation of adjustment lending, Stern (1983) strongly emphasized the first of the four rationales while also mentioning the second. Corbo and Fischer place primary emphasis on the third, while also acknowledging the second. The remarks by Wilfried Thalwitz during the conference related to the third rationale. Bacha, in contrast, appealed to the first. I have never heard the fourth mentioned in public, and it is unreasonable to expect it to feature in the rhetoric of officials, but that absence does not necessarily mean it is unimportant.

Implications for Conditionality

Any of the four rationales might be relevant and legitimate, depending on the country in question and its circumstances. The point of distinguishing among the motives is that the one which is relevant in a particular case may and should influence the conditions attached to the extension of loans.

Rationale one and even more so three are the ones that seem to call for conditions bearing on the full range of the "Washington consensus," that is, that cover liberalization and the opening up of the economy as well as stabilization, plus equity. The critical question here is very much that on which Corbo and Fischer focus, namely, whether the set of policies to be embodied in a program that the government "owns" is the best that can be conceived. The emphasis on equity, tax reform and spending on basic education and health in the Corbo-Fischer paper suggests the Bank is remedying some of the areas it has been charged with neglecting in the past decade. However, land reform is conspicuously absent from the list.

Where rationale one is concerned, the question is whether it is appropriate to condition loans on *adjustment*—on *changes* in policies—rather than on policies being appropriate. Alejandro Foxley made the point, when visiting Washington, D.C. in November 1990, that Chile was expecting to have some difficulty in continuing to borrow from the Bank in coming years, despite its big debt-service obligations, because it had already made all the policy adjustments the Bank typically rewarded with adjustment loans, including privatizing most of the state sector, a change that meant there were few public sector enterprises eligible for project loans. Under such circumstances the Bank should be prepared to continue non-project lending, even if it has to call it non-adjustment lending, with the condition that the country maintain the policies unchanged.

In the case of rationale two, the conditions essentially have to be those typical of IMF conditionality: an appropriate mix of demand restraint, chiefly by fiscal consolidation; and devaluation aimed at achieving a competitive real exchange rate. The Bank has come to emulate the Fund in preaching the necessity of such policies. However, it is

hoped the Bank will exhibit more finesse in its relations with member countries than the Fund has, so that it does not also become a popular bogeyman.

Where rationale three is applicable, it is certain the country "owns" the program. Accordingly, it is least necessary to truss the country up in a long list of niggling conditions. Conditions that serve to provide a basis for policy dialogue, strengthen the hand of the technocratic element within the government and retain the right to terminate the program if the government falls or backs too far away from its initial good intentions are the only type of conditionality needed.

The fourth rationale is by far the most problematic. One approach is to refuse non-project lending to unenlightened governments. This approach is pretty much Bank policy: it is presumably no coincidence that the remarks on which I based my description of that rationale were uttered by a staff member of the Fund rather than the Bank. At the same time, it may on occasion be difficult to deny non-project loans to some governments with ambiguous credentials. Hence, it may be worth thinking about the sorts of conditions that are appropriate under these circumstances.

It is no good hoping that such a government will "own" the program. The policy measures included have to be ones that are easily policed and preferably difficult to reverse. To the extent those criteria permit, desirable reforms would be trade liberalization, deregulation and privatization, or, especially, "improved governance," although pushing for the latter may be asking for the moon. A reform that would not be particularly appropriate is tax reform, since it would give the government more money to mishandle.

Success of Adjustment Lending

I have little to say on this topic. I doubt if the case made in the paper will convince a determined skeptic that adjustment lending has been an enormous success, but those of us who approve of the sorts of conditions on which the Bank has focused are relieved to find there is some evidence of a positive record. Adjustment lending is not yet, however, nurturing a new generation of newly industrialized countries. At least, the paper does not say so.

References

Stern, Ernest. 1983. "World Bank Financing of Structural Adjustment." In J. Williamson (ed.), *IMF Conditionality*. Washington, D.C.: Institute for International Economics.

Williamson, John. 1990. *The Progress of Policy Reform in Latin America*. Washington, D.C.: Institute for International Economics.

World Bank-Supported Adjustment Programs: Country Performance and Effectiveness

Vittorio Corbo and Patricio Rojas

The purpose of a structural adjustment program is to restore sustainable economic growth and make lasting progress in alleviating poverty. The process is lengthy, however, often with requirements to control inflation, achieve a sustainable external balance, change incentives, create or strengthen institutions, mobilize savings and increase investment. Control of inflation and reduction of the external deficit are usually attempted at the beginning of the program, to lay the foundation for credible macroeconomic and institutional reform. When enough progress has been achieved with inflation and the current account, structural reforms to improve the allocation of resources and lift other impediments to growth are initiated.

Given the length of the process, examination of performance indicators one or two years after initiation of an adjustment effort reveals little about its effectiveness and benefits in the medium and long terms. Rather, it likely picks up the short-term costs of adjustment. A more complete evaluation of adjustment programs is best carried out through case studies of countries where enough time has passed since initiation of the adjustment effort. Even then, the evaluations need to look beyond the characteristics of the program to take into account, as well, initial conditions in the country (e.g., GDP growth and the ratios of investment, saving and exports to GDP in the period before the program) and both internal (e.g., the policy environment) and external (e.g., the terms of trade, international real interest rates and access to external financing) factors in assessing effectiveness.

Another key point about the evaluation of performance in adjusting countries is the necessity of measuring the marginal contribution of adjustment programs while controlling for other factors that affect performance. The contribution of an adjustment lending program can be calculated as the difference between actual performance and an estimated counterfactual scenario of what would have happened

in the absence of the program, given initial conditions in the country, the external environment facing it and policies in the period before the program was initiated. In the present study, three alternative statistical approaches were used in constructing the counterfactual scenario: the standard before-and-after comparison; the standard control-group comparison; and the modified control-group comparison, in which the effects of adjustment lending are assessed using techniques to control not only for conditions that influence the effectiveness of adjustment measures but also for country characteristics that help determine the decision to participate in an adjustment program. In sum, the initiation of an adjustment program with World Bank support is seen as an endogenous decision that is based on the benefits the country expects from the program.[1]

These three approaches were used to assess if countries that undertook adjustment programs with the World Bank performed better than they would have in the absence of the program. Performance and the effectiveness of adjustment lending were evaluated using four indicators: rate of growth of GDP; ratio of saving to GDP; ratio of investment to GDP; and ratio of exports to GDP. The value of the performance indicators in 1985–88—a period after adjustment was initiated—was compared with performance in two base periods, 1970–80 and 1981–84, for three groups of countries:

- Early-intensive adjustment lending (EIAL) countries, which received two or more structural adjustment loans (SALs) or three or more adjustments loans (SALs or sectoral adjustment loans [SECALs]) starting in 1985 or before
- Other adjustment lending (OAL) countries, which started a program after 1985 or received fewer than two SALs or fewer than three adjustment loans in 1985 or before
- No adjustment lending (NAL) countries, which received no adjustment loans.[2]

Initial Conditions, External Shocks, Policy Stance and a First Look at Performance

Initial conditions and external shocks are important determinants of performance as well as of the demand for adjustment lending. Similarly, the domestic policies before and during adjustment are also important. In fact, countries receiving adjustment lending are supposed to follow policies aimed at reducing the current account deficit to a level compatible with normally available financing while minimizing losses in output and employment and creating the conditions for sustainable growth. Fiscal, monetary and exchange rate policies are the key macroeconomic ones used for adjustment (most of the time as part of an International Monetary Fund [IMF] program), while the most common types of Bank-supported structural reforms involve institutional and incentive measures in the public sector, trade policy and the financial system.

When other factors are controlled for, the importance of initial conditions in the performance of a country when it undertakes a program is evident. A country with better initial conditions (e.g., higher saving, investment and export to GDP ratios, a lower debt to GDP ratio, a lower fiscal deficit to GDP, less inflation, and so on) has a better chance of improving its performance under a given adjustment program than does a country with worse initial conditions.

As table 3–1 shows, in the 1970–80 base period the EIAL countries had, relative to OAL countries, higher saving and investment ratios. In contrast, they had the highest debt to GDP ratios and the highest rates of inflation. In the case of the ratios of debt to exports and exports to GDP, rate of growth of GDP and fiscal deficit to GDP, the EIAL countries fell between the OAL and NAL countries. The OAL countries had the highest debt to export ratios and the lowest saving to GDP ratio and rate of growth of GDP. In contrast, the NAL countries had the most favorable ranking for eight of the nine indicators. In the 1981–84 period, in general, the indicators of initial conditions showed a similar ranking as before, except for the rate of growth of GDP, which was lowest in the EIAL countries (see tables 3–2 and 3–3). However, in absolute terms the indicators for inflation and GDP growth were worse for the three groups, especially the EIAL countries. Thereafter, based on a review of initial conditions in each group of countries, it appears that on average the NAL countries did not need adjustment, while the EIAL countries did quite well in the 1970s except in the case of debt indicators. However, in the 1981–84 period, the demand for adjustment lending by the EIAL countries seems to have been the result of a mixture of debt problems and the worst indicators in terms of inflation and GDP growth.

Even if initial conditions had been the same in the various country groups, the differences in the intensity with

Table 3–1. Initial Conditions

(period average, 1970–80)

	1 *Debt as %* *of GDP* [a]	*2* *Debt as % of* *exports* [a,b]	*3* *Real* *effective* *exch. rate*	*4* *Fiscal* *deficit as* *% of GDP* [c]	*5* *Annual avg.* *rate of* *inflation*	*6* *Rate* *of* *growth* [d]	*7* *Domestic* *saving as* *% of GDP* [d]	*8* *Investment* *as %* *of GDP* [d]	*9* *Exports* *as %* *of GDP* [d]
EIAL average	41.5 (3)	204.7 (2)	98.3 (3)	-6.4 (2)	23.2 (3)	4.6 (2)	18.7 (1)	24.3 (3)	24.7 (2)
Median	46.5	199.6	96.6	-6.9	13.5	5.6	19.2	23.8	22.3
1st quartile	24.2	116.3	94.4	-9.2	9.8	2.5	14.5	19.8	15.5
3rd quartile	49.3	277.0	101.7	-3.5	19.8	6.3	22.1	28.2	29.4
OAL average	39.6 (2)	206.2 (3)	97.9 (1)	-7.0 (3)	21.3 (2)	3.9 (3)	13.9 (3)	23.6 (2)	24.7 (3)
Median	34.9	150.1	99.1	-5.2	11.8	3.6	14.3	21.8	20.4
1st quartile	22.3	116.0	95.1	-7.1	8.9	2.7	2.9	15.7	12.0
3rd quartile	45.6	320.8	101.2	-2.1	16.9	4.9	24.0	30.8	34.4
NAL average	29.7 (1)	144.6 (1)	97.8 (1)	-4.4 (1)	12.2 (1)	5.5 (1)	14.6 (2)	22.6 (1)	29.9 (1)
Median	26.1	112.6	97.6	-3.5	11.4	4.6	15.4	21.6	29.1
1st quartile	16.9	76.8	94.2	-7.7	9.1	3.6	10.0	16.8	16.3
3rd quartile	37.0	128.8	100.5	-1.4	13.3	7.0	19.6	25.8	36.6

Note: The numbers in parentheses are the rankings of the country groups for that indicator ("best" is one).

a. The ratios are computed using data in current US dollars; the period covered is 1975–80. The data include total disbursed guaranteed and non-guaranteed debt.

b. Exports of goods and non-factor services are obtained from balance-of-payments statistics in the World Bank files.

c. This column considers only the average for the period 1976–80 and is based on International Monetary Fund data; Algeria, Bolivia, Indonesia and Jamaica only have data available since 1979, Guinea-Bissau and Morocco since 1978, and Brazil, Burkina Faso, China, Congo, Greece, Niger and Portugal since 1977.

d. The ratios are calculated with data in constant local currency.

Source: World Bank data.

Table 3-2. Country Performance

	Rate of growth [a]			Ratio of domestic saving to GDP			Ratio of investment to GDP			Ratio of exports to GDP		
	1970–80	1981–84	1985–88	1970–80	1981–84	1985–88	1970–80	1981–84	1985–88	1970–80	1981–84	1985–88
EIAL												
Average	4.6 (2)	1.3 (3)	4.2 (1)	18.7 (1)	14.8 (1)	17.2 (1)	24.3 (3)	19.9 (1)	18.6 (1)	24.7 (2)	25.1 (2)	28.1 (1)
Median	5.6	0.6	3.7	19.2	14.7	15.8	23.8	19.0	16.5	22.3	20.8	24.6
1st quartile	2.5	-0.5	2.0	14.5	10.9	9.1	19.8	15.8	12.0	15.5	13.2	14.4
3rd quartile	6.3	2.7	6.0	22.1	19.0	19.1	28.2	21.0	20.4	29.4	30.1	31.0
OAL												
Average	3.9 (3)	2.3 (2)	3.0 (2)	13.9 (3)	12.7 (2)	13.3 (3)	23.6 (2)	22.0 (2)	29.1 (3)	24.7 (3)	24.4 (3)	23.6 (3)
Median	3.6	1.9	3.1	14.3	12.0	12.2	21.8	19.2	18.1	20.4	19.4	17.9
1st quartile	2.7	0.6	0.5	2.9	1.2	1.6	15.7	14.7	12.2	12.0	9.0	9.6
3rd quartile	4.9	3.9	3.9	24.0	21.1	16.6	30.8	25.8	23.2	34.4	25.3	29.9
NAL												
Average	5.5 (1)	3.1 (1)	2.7 (3)	14.6 (2)	14.0 (3)	14.4 (2)	22.6 (1)	24.1 (3)	20.0 (2)	29.9 (2)	26.1 (1)	24.6 (2)
Median	4.6	2.6	2.2	15.4	14.1	13.9	21.6	22.7	21.8	29.1	25.3	22.8
1st quartile	3.6	-1.2	0.7	10.0	7.9	7.5	16.8	17.7	13.0	16.3	14.9	14.9
3rd quartile	7.0	5.7	3.9	19.6	20.0	19.2	25.8	27.3	23.2	36.6	32.1	43.8

Note: The figures in parentheses indicate the rankings of the country groups for that indicator ("best" is one).
a. The ratios are calculated with data in constant local currency.
Source: World Bank data.

which they experienced the external shocks could have affected the economic performance of those countries implementing adjustment programs. The developing countries in the 1980s faced an external environment that combined a world recession, the highest real interest rates since the Great Depression, declining and often volatile terms of trade

for many of them, and, in the case of many middle-income countries, a sudden cut-off from the international financial markets. Table 3–4 presents the effect of the terms of trade and interest rate shocks only. A comparison of 1981–84 with 1970–80 shows how large the external shocks in the early 1980s were: both EIAL and NAL countries suffered an

Table 3-3. Selected Indicators of Policy Stance

	Real effective exchange rate [a]				Ratio of fiscal deficit to GDP [b]				Annual average rate of inflation				Ratio of resource balance to GDP [c]			
	1970–80	1981–82	1983–84	1985–88	1970–80	1981–82	1983–84	1985–88	1970–80	1981–82	1983–84	1985–88	1970–80	1981–82	1983–84	1985–88
EIAL																
Average	99.3 (3)	110.7 (3)	103.6 (2)	79.0 (1)	-6.4 (2)	-7.6 (3)	-6.2 (1)	-4.6 (3)	23.2 (3)	27.5 (3)	59.8 (3)	150.4 (3)	5.1 (1)	7.1 (1)	3.2 (1)	1.4 (1)
Median	96.6	105.7	98.2	78.9	-6.9	-7.6	-6.1	-3.8	13.5	14.3	17.9	13.4	5.0	6.1	1.9	0.7
1st quartile	94.4	97.6	88.6	69.7	-9.2	-10.5	-7.1	-5.9	9.8	11.5	6.5	4.8	2.1	3.9	0.2	-2.6
3rd quartile	101.7	112.3	107.9	86.3	-3.5	-4.3	-3.3	-2.2	19.8	31.2	31.2	26.5	8.4	10.2	5.6	4.3
OAL																
Average	97.9 (2)	104.2 (10)	103.4 (1)	81.1 (2)	-7.0 (3)	-7.3 (2)	-7.6 (3)	-8.4 (3)	21.3 (2)	22.3 (2)	44.6 (2)	37.6 (1)	7.3 (3)	10.9 (2)	7.7 (2)	6.8 (3)
Median	99.1	104.0	96.9	80.8	-5.2	-5.8	-5.7	-5.7	11.8	14.3	11.1	10.1	5.5	9.5	5.0	2.1
1st quartile	95.1	96.3	89.3	64.5	-7.1	-8.0	-9.6	-11.0	8.9	9.8	7.8	3.7	2.1	1.3	-0.7	-0.0
3rd quartile	101.2	112.5	106.8	97.2	-2.1	-3.6	-3.3	-3.1	16.9	25.1	39.8	33.9	9.4	13.9	12.8	11.2
NAL																
Average	97.8 (1)	106.7 (2)	116.7 (3)	115.0 (3)	-4.4 (1)	-6.7 (1)	-7.0 (2)	-6.4 (2)	12.2 (1)	13.5 (1)	15.2 (1)	135.7 (2)	6.7 (2)	12.6 (3)	7.7 (2)	5.6 (2)
Median	97.6	107.4	113.0	101.1	-3.5	-6.2	-7.1	-6.4	11.4	10.4	9.2	9.0	3.6	7.5	6.1	5.5
1st quartile	94.2	102.1	98.0	87.4	-7.7	-10.4	-9.8	-10.3	9.1	7.6	6.0	4.4	2.0	3.0	1.9	-0.9
3rd quartile	100.5	115.7	128.6	122.8	-1.4	-2.4	-3.7	-3.0	13.3	13.8	15.9	20.1	8.4	17.2	10.4	8.9

Note: The figures in parentheses indicate the rankings of the country groups for that indicator ("best" is one).
a. The real effective exchange rates are taken from the International Monetary Fund data base. The first column considers only the average of the 1978–80 period. A decrease in the index (1980 = 100) indicates a real depreciation.
b. International Monetary Fund data. The ratios are computed using data in current local currency. Algeria, Bolivia, Indonesia and Jamaica only have data available since 1979, Guinea-Bissau and Morocco since 1978, and Brazil, Burkina Faso, China, Congo, Niger and Portugal since 1977. The data for 1976 and 1988 for Greece are missing.
c. The ratios are calculated with data in constant local currency.
Source: World Bank and International Monetary Fund data.

Table 3–4. External Shocks

A. Effects of external shocks overall and on the terms of trade and real interest rate
(percent of GDP)

	1981–84 relative to 1970–80			1985–88 relative to 1970–80			1985–88 relative to 1981–84		
	Terms of trade	Real interest rate	Total shock	Terms of trade	Real interest rate	Total shock	Terms of trade	Real interest rate	Total shock
EIAL	-10.5	-1.9	-12.4	-6.0	-3.2	-9.2	1.1	-0.2	0.9
OAL	-2.9	-2.0	-4.9	-3.4	-3.6	-7.0	-0.4	-0.6	-1.0
NAL	-10.4	-1.2	-11.6	-13.9	-2.0	-15.9	-3.3	-0.3	-3.6

B. Total external shocks with median and first and third quartile figures

	1981–84 relative to 1970–80	1985–88 relative to 1970–80	1985–88 relative to 1981–84
EIAL average	-12.4	-9.2	0.9
Median	-13.6	-10.1	0.7
1st quartile	-17.1	-13.3	-2.3
3rd quartile	-8.9	-3.3	3.4
OAL average	-4.9	-7.0	-1.0
Median	-6.3	-6.9	-1.5
1st quartile	-16.8	-13.1	-5.2
3rd quartile	-1.9	0.5	2.1
NAL average	-11.6	-15.9	-3.6
Median	-10.8	-11.2	-1.6
1st quartile	-20.6	-25.0	-7.1
3rd quartile	-2.1	-5.2	0.0

Note: The total effect of the external shocks as a percent of GDP is computed as the sum of the real interest rate and terms of trade effects. The interest rate effect is calculated as $-(r - r_{base})*(debt/GDP)_{beg}$, where r is the real interest rate, computed as $(i - dp/p)/(1 + dp/p)$; r_{base} is the average real interest rate in base period (1975–80) or (1981–84); i is the ratio of interest payments to total debt; interest payments are calculated by adding public and private interest payments; private interest payments are proxied by multiplying private debt by L (L equals a three-month annualized LIBOR plus 1 percent); private debt is estimated by subtracting public and publicly guaranteed debt from total debt; dp/p is "world" inflation (proxied by the percentage change in the GNP deflator of the United States); and $(debt/GDP)_{beg}$ is the ratio of debt to GDP in the year preceding the beginning of the end period. The debt data correspond to total disbursed guaranteed and non-guaranteed debt. Debt and interest rate information is available starting in 1975 only. Therefore, the average for the period 1970–80 is estimated using information for the period 1975–80.

The effect of the terms of trade is computed as $[(PX/PX_{base})-1]*(X/GDP)_{beg} -[(PMW/PM_{base})-1]*(w/GDP)_{beg}$, where PX and PM are the average export and import price indices deflated by the US GNP deflator, respectively; PX_{base} and PW_{base} are the average price indices of the base period; X and M are exports and imports of GNFS; and $(X/GDP)_{beg}$ and $(M/GDP)_{beg}$ are the ratios of X and M to GDP respectively, at the year preceding the beginning of the end period. All the variables are denominated in current US dollars.

Source: World Bank data.

average annual loss of close to 12 percent of GDP in 1980, while for the OAL countries it was about 5 percent. In contrast, when comparing the period 1985–88 with the period 1981–84, the EIAL countries were the only group that experienced a positive external shock. However, this positive shock followed a much larger deterioration in the early 1980s.

External financing from non-official sources to the EIAL and OAL countries dropped substantially after the 1981–82 period, just when they were being hit by large terms of trade and interest rate shocks. If the negative external shocks of the early 1980s had been judged as temporary, the EIAL and OAL—principally middle-income—countries could have

pursued the standard—and proper—option of using foreign reserves and foreign borrowing to avoid adjustment. However, with the exception of IMF and World Bank borrowing—which was conditional on the adoption of an adjustment program—foreign borrowing was difficult to obtain after August 1982. Moreover, once it became clear the adverse external environment would continue for some time, countries had to adjust. For countries that were ready to initiate adjustment programs, the access to financing from international financial institutions allowed them to make progress toward achieving internal and external balance by gradually implementing structural adjustment policies, assisted by foreign commercial borrowing.[3] Table 3–5 shows

Table 3–5. Non-Official External Financing before and during Adjustment—Net Flow as a Percent of GDP

	1975–80	1981–82	1983–84	1985–88
EIAL	1.8	3.3	0.4	0.0
OAL	3.0	1.1	0.6	0.5
NAL	1.1	3.1	2.2	-0.2

Note: The net capital flows correspond to the net long- and short-term capital flows obtained from the balance of payments minus net flows (disbursements minus amortizations) provided by official (bilateral and multilateral) creditors. All variables are denominated in current US dollars. Panama is not included in the data to avoid the distortions that the enormous capital flight causes in the aggregate.
Source: World Bank data.

that EIAL countries suffered severe reductions in non-official flows of external financing after 1982, while NAL countries continued to receive an important amount in terms of GDP. That fact helps explain why the NAL countries did not use adjustment lending even when the total external shock they faced in 1981–84 was also major.

Country Performance

As noted, to compare the performance of the EIAL, OAL and NAL countries, four indicators of progress on macro-economic adjustment—real GDP growth and the ratios of domestic saving to GDP, investment to GDP and exports to GDP—in three periods, 1970–80 (first), 1981–84 (second) and 1985–88 (third), were used. Although judgment about the effectiveness of an adjustment program cannot be based on a simple comparison of observed performance, nevertheless the before-and-after approach is useful in highlighting what happened in the country groups.[4]

Table 3–2 shows that for the EIAL countries the rate of growth of GDP dropped substantially from 1970–80 to 1981–84 but then recovered in 1985–88. In the OAL and NAL countries, the rate of growth dropped on average between the first and second periods and then between the second and third increased a little for the OAL countries and showed a small decrease for the NAL countries. A drastic reduction in the rate of growth of GDP between the first and second periods was common to all the country groups but was greatest for the EIALs.[5]

The ratio of investment to GDP in the EIAL and OAL countries on average decreased continuously from the first to the third periods. For the NAL countries, the ratio rose between the first and second periods and fell between the second and third.[6]

Domestic saving as a share of GDP in the EIAL countries dropped by 3.9 percentage points between the first and second periods and then recovered 2.4 percentage points between the second and third periods. In contrast, in the NAL countries, the drop between the first and second periods was smaller, but the recovery was only 0.4 percent of GDP.[7]

The export to GDP ratio of the EIAL countries improved continuously from the first to the third periods, increasing by almost 4 percentage points on average.[8]

To assess the effect of extreme observations, indicators of rank (first quartile, median and third quartile) were also used. There is no evidence that extreme observations distorted the information provided by the central tendency measures except in the case of the ratio of exports to GDP.

Policy Stance

To see how the policy stance changed in the EIAL countries, four indicators—the real exchange rate, the inflation rate and the fiscal and resource balance deficits as shares of GDP (table 3–3)—were used. Although a government cannot directly control the real effective exchange rate or inflation rate, its fiscal, monetary and exchange rate policies affect the evolution. For countries that had to reduce their current account deficits, a substantial real devaluation was an important component of successful adjustment. For many countries after 1982, it was available financing rather than policies that determined the evolution of their resource balance. Therefore, the resource balance in the post-1982 period was more a constraint than a policy variable.

The comparison of 1981–82 with 1970–80 shows that the EIAL countries experienced an increase in the fiscal deficit as a share of GDP, appreciation of their currencies, increase in their average inflation rates, and increase in their average resource balance deficits. After 1981–82, in general the EIAL countries improved their fiscal situation and achieved a continuous real depreciation. Nevertheless, average inflation rose constantly, the result of the greater monetization of their (smaller) fiscal deficits. The middle-income EIAL countries with large external public debts adjusted their budgets in response to the sharp drop in their capacity to borrow abroad, but at the same time their interest payments on external debt were increasing, and government revenues were suffering from the worsened terms of trade. The resource balance deficit as a share of GDP fell in the EIAL countries by more than half on average between 1981–82 and 1983–84.

To deal with the fiscal crisis starting in 1981–82, the typical EIAL country cut its public expenditures (usually by drastically reducing investment), increased its revenue and relied more on domestic financing of the budget deficit (via domestic interest-bearing debt or credit from the central bank). Bail-outs of firms hit hard by the large devaluations and the recession complicated the fiscal situation further. Fiscal adjustment, usually a prerequisite for improving internal macroeconomic stability, typically was at the heart of the structural adjustment programs. For the EIAL countries, the resource balance deficit as a share of GDP declined continuously after 1981–82.

The OAL countries also showed a mild deterioration in all four policy indicators between 1970–80 and 1981–82.

Then, between 1981–82 and 1983–84, there was an increase in the rate of inflation without much change in the real exchange rate and the fiscal situation. The countries nevertheless made progress between 1983–84 and 1985–88 in achieving real devaluations and in reducing their resource balance deficits as a share of GDP.

Economic policy before 1980 was better in the NAL countries than in other countries. After 1981–82, however, their real exchange rates appreciated substantially and their policy indicators and real growth of GDP worsened (table 3–3).

Statistical Analysis of Country Performance

The Before-and-After Approach

This approach consists of comparing a given indicator of performance after a specific program was put in place with performance on that indicator prior to the program. The before-and-after estimator is simply the mean change in the target variable over some relevant period. With Δy the change in the target variable between the program period and the previous period, the simple before-and-after estimator (ß) involves calculating the mean change across the group of program countries for each of the macroeconomic outcome variables to be analyzed:

$$(3-1) \quad \Delta y_i = \beta \quad \text{for all } i \; \varepsilon \; P$$

where P denotes the set of program countries. Thus, any change in a target variable in a program country (or in a group of program countries) is attributed exclusively to the program. The significance of this estimator, ß, is usually tested through the standard t-test and, in some cases, through non-parametric statistical tests.

Although the before-and-after approach has been the most popular in the literature on the effects of programs, the results are likely to be biased and inconsistent. The main problem is that this approach embodies the implicit assumption of "other things being equal," which is highly implausible. Specifically, it is difficult to determine whether observed changes in, say, the GDP growth rate can be ascribed to a Bank-supported program or to other non-program factors that have not been held fixed in the analysis. This point is crucial because in the present period of analysis, the non-program determinants, especially terms of trade and international interest rates, changed widely from year to year and country to country. If the effectiveness of a program is defined as the difference between the actual macroeconomic performance observed under a program and the performance that would have been expected in the absence of the program,[9] the before-and-after approach is a poor estimator of this counterfactual scenario, because the situation prevailing before the program is not likely to be a good predictor of

what would have happened in the absence of a program, given that non-program determinants are changing from year to year.

Control-Group Approach

The control-group approach is designed to overcome, in part, the inability of the before-and-after approach to distinguish between program and non-program determinants of macroeconomic outcomes. This procedure basically uses the behavior of a control group (a group of non-program countries) to estimate what would have happened in the program group in the absence of programs. It implicitly assumes that the only difference between the program and non-program groups is that countries in the former are undertaking a program. The control-group approach still assumes, however, that program and non-program countries are subject to the same non-program determinants, i.e., they face the same external environment, and the effect on performance of these other determinants is the same for both groups of countries. This approach also ignores the effects of pre-program characteristics on performance.

The control-group estimator is calculated by running the following regression for the sample of program and non-program countries:

$$(3-2) \quad \Delta y_i = \beta_0 + \beta_1 d_i \quad \text{for all } i \; \varepsilon \; Q$$

where Q denotes the set of program and non-program countries and d_i is a dummy variable with a value of one for program countries. The estimated value of ß$_1$ is equal to the difference in the mean changes in the target variables for program and non-program countries. Thus, a statistically significant value for ß$_1$ would indicate that the change in the target variable for the program country was different from the corresponding change in non-program countries (the control group).

This approach controls for the effect of changes in the global economic environment, but it assumes that such global factors affect program and non-program countries equally. This assumption introduces a bias whenever program countries differ systematically from non-program countries.

This point is important for performance evaluation. If the determinants of program selection are positively correlated with the non-program determinants of change in the macroeconomic target variables that would have occurred in the absence of a program, the control-group estimate of the program's effects will overstate the actual program ones. In short, if the program countries are more likely to have experienced negative temporary shocks in the pre-program period, a comparison of the changes in mean macroeconomic outcomes between program and non-program countries will most likely overstate the true independent effect of the program. A negative shock in the pre-program period simulta-

neously increases the probability of participation in the program and the probability of a positive change in the target variable, y_i, in the program period. Thus, attributing all the improvement in y_i to a program overstates its real effect.

This kind of bias, known in the literature as sample-selectivity bias, will be zero if the determinants of program selection are uncorrelated with the determinants of macroeconomic performance or when the program group has been randomly selected. Only in these cases will the control-group approach estimator be an unbiased indicator of the program effect.

A Modified Control-Group Estimator

There are several estimators that resolve the sample-selectivity bias. One is obtained from the modified control-group approach.[10] The basic idea is to accept the non-random selection of program countries, to identify the differences between program and non-program countries in the pre-program period and then to control for these differences in the comparison with subsequent economic performance. Furthermore, the modified control-group approach also controls for world economic conditions and the stance of country policies without a program.

The modified control-group approach starts from the basic equation for the macroeconomic target variable in country i in level form (equation 3–3) instead of using the first difference form that was applied in the before-and-after and control-group approaches. Thus, in the third period the following equation is found:

$$(3-3) \quad y_i = x_i' \omega + W_i' \alpha + \beta_4 d_i + e_i$$

where x_i is a K-element vector of the macroeconomic policy instruments that would have been observed in the absence of a program in country i; W_i is an M-element random vector of world non-program variables relevant to country i; and d_i is a dummy variable that takes a value of unity if a country has a program and a value of zero otherwise.[11] Equation (3–3) says that the level of the targeted results will be a function of four factors: (1) the value of selected policy instruments that would have occurred in the absence of a program, x; (2) the change in selected world economic conditions, W; (3) the total effects of a Bank-supported program if the country has a program in place, d; and (4) a range of unobservable shocks that are specific to country i, e_i.

The complete policy vector x can be generated by estimating equation 3–4, the policy reaction function:[12]

$$(3-4) \quad \Delta x_i = \gamma [y_i^d - (y_i) - 1] + u_i$$

where y_i^d is the desired value of the vector y_i and u_i is the unobservable error term. This equation says that policy-makers display a systematic policy reaction to perceived

disequilibria in their macroeconomic target variables. More specifically, it says that the change in country i's macroeconomic policy instruments between the current and previous periods will be a function of the difference between the desired value of the macroeconomic target variables in this period and their actual value in the preceding period. γ is the vector of the coefficients that indicates the responsiveness of the policy instruments to such target disequilibria.

In practice, as Goldstein and Montiel (1986) mention, an important limitation of the modified control-group estimator is that such a reaction function may be highly unstable both across countries and in a given country over time so that, in the extreme case of instability, the problem of estimating the counterfactual scenario becomes insoluble.

The model is completed with equations (3–5) to (3–7):

$$(3-5) \quad z_i = [y_i^d - (y_i)_{-1}] \delta + \pi_i$$

$$(3-6) \quad d_i = 1, \quad \textit{if } z_i > z^*$$

$$(3-7) \quad d_i = 0, \quad \textit{if } z_i \leq z^*$$

where z_i is a random variable that serves as the index of country-specific characteristics that determines the probability of country i having a program during a given period; z^* is the threshold value of the z that divides program from non-program countries; and π_i is an unobservable error term.

The first step in estimating x_i for the program countries is to fit the reaction function to observable data for the non-program countries. The only unobserved variable in equation (3–4) is the country-specific vector of desired macroeconomic outcomes, y_i^d. As Goldstein and Montiel (1986) maintain, if this variable can be assumed to be constant over time, it can be captured by a set of country-specific constants (γ_{oi}) so that equation (3–4) is now

$$(3-8) \quad \Delta x_i = \gamma_{oi} - \gamma(y_i)_{-1} + ui.$$

If both the setting of the policy instruments in equation (3–8) and the acceptance by a country of a program as specified in equation (3–5) reflect policy decisions of the government, any unobservable factors, π_i, that make a given country more likely to resort to official assistance, such as a specific program, may also lead it to adopt a different policy package in the absence of the program, in contrast to another country facing similar observable circumstances. Thus, if the model presents a correlation between the error terms π_i in equation (3–5) and u_i in equation (3–4), the behavior of the non-program countries would not be a good guide to the counterfactual scenario in the program countries. If such a correlation is present,[13] then equation (3–8) will provide a biased estimate of Δx_i for the program countries, unless something is assumed with respect to the errors π_i and u_i. The method of estimation used in this paper does not require

any extra assumption with respect to the relationship between the error terms of equations (3-4) and (3-5) (more on this point below) (see Heckman 1979).

By subtracting $(y_i)_{-1}$ from both sides of equation (3-3) and substituting x_i with equation (3-8), the model for estimating the effects of a specific program is:[14]

$$(3-9) \quad \Delta y_i = \beta_0 + \beta_1 (yi)_{-1} + \beta_2 (x_i)_{-1}$$
$$+ \beta_3 W_i + \beta_4 d_i + e_i$$

However, the dummy variable included on the right-hand side of the equation that measures the effect of the program in country i is endogenous. The choice of countries to undertake a specific program depends principally on their expectation of better performance with respect to the target macroeconomic variables, y_i. Thus, it is expected that the coefficient of the effect of the program should be biased and inconsistent in the model used by Goldstein and Montiel (1986). This kind of bias can also be called self-selectivity, because the data are generated by the self-selection of the countries.

To resolve this selectivity bias, Barnow, Cain and Goldberger (1981) discuss several consistent estimators for this situation. The method used here essentially treats d_i as an endogenous variable and uses instrumental variables to correct for the bias (see also Heckman 1978). The first stage consists of estimating a status equation that determines whether or not the country should undertake a program. The following equation is estimated using the probit ML method:

$$(3-10) \quad P(d_i = 1) = \Phi[\delta_0 + (y_i)_{-1}\delta + (x_i)_{-1}\omega$$
$$+ W'\phi + R'\psi] = \Phi[v_i\theta]$$

where $\Phi[\ ]$ denotes the standard normal cumulative distribution, W is an M-element random vector of world non-program variables, and R is an N-element vector of individual country characteristics, such as if the country is low-income, has a recurrent program with the IMF, has had an important internal shock and so on. In the second stage, the value of the probability that the country will undertake a program with the World Bank, calculated with equation (3-10), is used as an instrument for d_i in the estimation of equation (3-9). The probability of the country undertaking a specific program, calculated by the probit model, is

$$(3-11) \quad \hat{d}_i = \Phi[V_i\theta].$$

Thus, use of an instrumental variables technique in the estimation of equation (3-9), with $\hat{d}_i$ as an instrument of d_i,[15] allows a consistent estimate of $ß_4$, the coefficient of the effectiveness of the program, to be obtained.[16]

Overview of the Data

All the data used in the analysis were taken from the World Bank's ANDREX data base except the real exchange rate, which came from IMF calculations. A sample that contained observations from 77 developing countries during the 1970–88 sample period was used. The countries were the ones for which data were available for all relevant macroeconomic variables for the period 1970–88.

Data were used in both current and constant prices. Because most EIAL countries carried out a real depreciation in 1985–88, the relative price of investment goods and exports rose relative to the early 1980s. Therefore, to measure the contribution of growth in the supply response of exports, it was better to work with the investment to GDP and export to GDP ratios in constant prices. For completeness and to satisfy the adding-up condition, saving ratios in constant prices were also used.

For purposes of this analysis, the countries were grouped into three categories: EIALs; program countries; and the "control" group—the non-program countries—which consisted of OALs and NALs. The OALs were considered non-program countries because they had received too few adjustment loans during the period analyzed.

The sample period was, as noted, divided into three periods: 1970–80 (first), 1981–84 (second) and 1985–88 (third), with the latter corresponding to the adjustment period. Performance in the third period in the program countries was compared with a counterfactual scenario of what would have happened in the absence of an adjustment program. Four indicators were studied: rate of growth of GDP and the ratios of gross domestic saving, gross investment and total exports to GDP. Simple averages in each period were calculated for each of these indicators. Thus, for each country j, there were observations for variable i in periods one, two and three. (A complete list of the variables used in the analysis is presented in appendix 2.)

The Empirical Results

In both the control-group and modified control-group approaches, the performance of the four indicators in 1985–88 was compared with performance in 1970–80 and 1981–84 for the program and non-program groups of countries.[17]

Table 3–6 reports the results of the control-group estimates. Given the criteria for program evaluation and with current prices, the coefficients of the program effects are statistically significant for the rate of growth of GDP and the ratio of exports to GDP: they show an improvement in the program period (1985–88) relative to periods one and two. In contrast, the other two indicators do not show significant improvement with respect to either of the previous periods (table 3–6). With constant prices, only the change in the average rate of growth is positive and statistically signifi-

Table 3–6. Control-Group Estimates of the Program Effects

Periods compared	Change in GDP growth	Change in investment/ GDP	Change in saving/ GDP	Change in exports/ GDP
A. Ratios at current prices				
1985–88 with 1970–80	0.017 (2.402)	-0.015 (-1.108)	0.014 (0.839)	0.042 (2.023)
1985–88 with 1981–84	0.028 (3.141)	0.017 (1.498)	0.021 (1.438)	0.042 (3.070)
B. Ratios at constant prices				
1985–88 with 1970–80	-.017 (2.402)	-0.031 (-1.786)	-0.013 (-0.620)	0.038 (1.603)
1985–88 with 1981–84	0.028 (3.141)	0.017 (1.322)	0.025 (1.516)	0.018 (1.466)

Note: As measured by the coefficient of the program dummy, β_1, of equation (3–2). The t-values are in parentheses.
Source: Authors' calculations.

cant. The ratio of investment to GDP shows a substantial decrease with respect to the period 1970–80. In contrast, the changes in the ratios of savings to GDP and exports to GDP are not significant. Thus, if only the results from the control-group approach were used to evaluate the adjustment lending program, the conclusion would be that it led to improvements in the rate of GDP growth and the current price ratio of exports to GDP.

In the case of the constant price ratios, the investment ratio decreased with respect to the period 1970–80, while the change in the other ratios was not statistically significant.

As mentioned earlier, the control-group estimates are an inconsistent estimator of the program's effects unless the determinants of program selection are uncorrelated with the determinants of macroeconomic performance or the program group is selected randomly. There are good a priori reasons for believing that the assignment of countries to the program and non-program groups was not random.

The inconsistency of the control-group estimates is overcome here by using the modified control-group estimates described earlier. Table 3–7 presents the maximum likelihood probit estimates of the coefficients of the participation status function, equation (3–10). If a country decided to participate in an adjustment program in the period 1981–84, it was assumed that the only important variables in that decision were: the value of the external shock during the period 1981–84 (period two) with respect to 1970–80 (period one), SHOCK1; the change in the ratio of the current account surplus to GDP between periods one and two, CACC6; the change in the ratio of non-official external financing to GDP between periods one and two, NETF6; the change in the ratio of total debt to GDP between periods one

and two, DEBT6; the level of investment in period two, INV2; the level of the real exchange rate in period two, RER2; and a group of dummy variables—if the country had a program with the IMF, D1, if it was an African country, D2, if it was a Latin American country, D3, if it was a middle-income country, D6, and if it had a rate of inflation of over 60 percent per year in period two, DINFLAC.[18]

All the coefficients of the participation equation (3–10) have the expected signs except the coefficient of change in the ratio of non-official external financing to GDP between periods one and two, NETF6. It was expected that a positive change in this variable would decrease the probability that a country would undertake an adjustment program with the World Bank. However, the coefficient is not significant. The rest of the coefficients are significant except for dummy variables D2 and D6. Table 3–7 also presents the pseudo-R^2, defined by McFadden (1974) as a measure of the goodness of fit of the ML probit estimation.

Table 3–7. Maximum Likelihood Probit Estimates of the Status Participation Equation

Variable [a]	Coefficient	Standard error	t-statistic	2-tail significance
Constant	-3.338	1.881	-1.775	0.081
CACC6	-15.269	6.685	-2.284	0.026
NETF6	7.731	5.183	1.491	0.141
RER2	0.020	0.012	1.667	0.101
SHOCK1	-3.156	1.583	-1.994	0.051
DEBT6	2.652	1.525	1.738	0.087
INV2	-8.692	4.574	-1.900	0.062
D1	2.045	0.715	2.858	0.006
D2	0.266	0.672	0.396	0.693
D3	-2.469	1.033	-2.389	0.020
D6	0.725	0.637	1.138	0.259
D7	3.540	1.008	3.511	0.001
DINFLAC	-1.465	0.658	-2.223	0.030

Note: Log likelihood = -24.99; pseudo R^2 = 0.50. Number of observations = 77. The pseudo R^2 measure is equal to [(1-log L_)/(log L_)], where L_ denotes the maximum of the likelihood function when maximized with respect to all the parameters and L_ is the maximum when maximized with respect to the constant term only.
a. CACC6: change in the current account deficit between period 1981–84 and period 1970–80
NETF6: change in the ratio of non-official external financing to GDP, period 1981–84 relative to period 1970–80
RER2: real exchange rate index period, 1981–84
SHOCK1: total external shock (positive), period 1981–84 relative to period 1970–80
DEBT6: change in the ratio of total debt to GDP between period 1981–84 and period 1970–80
INV2: ratio of domestic investment to GDP, period 1981–84
D1 = 1 if a country has a recurrent program with IMF, 0 otherwise
D2 = 1 if a country is African, 0 otherwise
D3 = 1 if a country is Latin American, 0 otherwise
D6 = 1 if a country is middle-income, 0 otherwise
D7 = 1 if a country is highly indebted, 0 otherwise
DINFLAC = 1 if a country had a rate of inflation over 60 percent in period 1981–84, 0 otherwise.
Source: Authors' calculations.

Consistent estimates of the coefficients of the target equation (3–9) were obtained using instrumental variables, with $\hat{d}_i$ as an instrument for d_i. Since grouped data were used, the robust White standard errors that were consistent under the possibility of heterokedasticity were calculated. The results are presented in table 3–8A and B.[19]

After explicitly controlling for the size of the external shock, initial conditions and the policies followed in the pre-program period by each country, it was found that the adjustment programs had a positive and significant effect on the rate of growth of GDP.[20] This finding is verified when comparing performance in 1985–88 with 1970–80 and 1981–84. The change in the annual average rate of GDP growth in the EIAL countries was 1.6 percentage points higher than that in all the other countries when measuring changes with respect to 1970–80. When measuring differences with re-

Table 3–8. Modified Control-Group Estimates of the Program Effects
(constant prices)

A. 1885–88 relative to 1970–80

	Variables [a,b]								
	Constant	GDP1	INV1	SAVDOM1	EXP1	RER1	FISC1	SHOCK2	d [c]
Change in	0.004	-0.613	0.032	-0.014	-0.034	-0.000	-0.052	-0.026	0.016
GDP growth	(0.133)	(-5.164)	(0.693)	(-0.425)	(-1.198)	(-0.003)	(-0.742)	(-1.358)	(1.988)[d]
Change in	0.009	0.854	-0.561	-0.014	0.021	0.000	-0.086	0.037	-0.035
investment/GDP	(0.128)	(3.339)	(-5.509)	(-0.173)	(0.427)	(0.609)	(-0.764)	(0.724)	(-1.725)[e]
Change in	-0.094	1.336	-0.011	-0.345	0.004	0.000	0.079	-0.010	0.014
saving/GDP	(-0.972)	(3.975)	(-0.084)	(-3.281	(0.065)	(0.707)	(0.513)	(-0.187)	(0.542)
Change in	-0.092	-0.412	0.634	-0.295	-0.179	0.001	0.621	-0.074	0.065
exports/GDP	(-0.700)	(-0.753)	(3.746)	(-1.816)	(-2.005)	(0.487)	(2.852)	(-0.833)	(2.023)[d]

B. 1985–88 relative to 1981–84

	Variables [a,b]								
	Constant	GDP2	INV2	SAVDOM2	EXP2	RER2	FISC2	SHOCK3	d [c]
Change in	0.009	-0.750	0.057	-0.030	-0.015	0.000	0.028	0.026	0.020
GDP growth	(0.625)	(-11.480)	(1.521)	(-0.989)	(-0.708)	(0.643)	(0.883)	(0.459)	(2.561)[f]
Change in	0.027	0.006	-0.343	0.092	-0.022	0.000	-0.052	0.081	0.001
investment/GDP	(0.908)	(0.063)	(-4.986)	(1.635)	(-0.662)	(0.360)	(-0.860)	(0.806)	(0.039)
Change in	-0.026	0.116	0.095	-0.238	0.069	0.000	-0.029	0.128	0.037
saving/GDP	(-0.702)	(0.860)	(0.795)	(-2.714)	(1.249)	(0.306)	(-0.312)	(1.199)	(2.186)[d]
Change in	-0.006	0.086	0.035	0.027	0.069	-0.000	0.000	0.063	0.025
exports/GDP	(-0.219)	(0.817)	(0.494)	(0.508)	(1.522)	(-0.849)	(0.006)	(0.688)	(1.640)[g]

Note: The t-values are in parentheses.
a. GDP1: average rate of GDP growth, period 1970–80
INV1: ratio of domestic investment to GDP, period 1970–80
SAVDOM1: ratio of domestic saving to GDP, period 1970–80
EXP1: ratio of total exports to GDP, period 1970–80
RER1: real exchange rate index, period 1970–80
FISC1: ratio of fiscal deficit to GDP, period 1970–80
SHOCK2: total external shock (positive), period 1985–88 relative to period 1970–80
GDP2: average rate of GDP growth period 1981–84
INV2: ratio of domestic investment to GDP, period 1981–84
SAVDOM2: ratio of domestic saving to GDP, period 1981–84
EXP2: ratio of total exports to GDP, period 1981–84
RER2: real exchange rate index, period 1981–84
FISC2: ratio of fiscal deficit to GDP, period 1981–84
SHOCK3: total external shock (positive), period 1985–88 relative to period 1981–84.
b. Estimation of equation (3–9), using d as instrument of d.
c. d = 1 for EIAL countries (program countries), 0 otherwise.
d. Statistically significant at the 5 percent level.
e. Statistically significant at the 7.5 percent level.
f. Statistically significant at the 2.5 percent level.
g. Statistically significant at the 10 percent level.
Source: Authors' calculations.

spect to 1981–84, the adjustment programs are estimated to have boosted the rate of GDP growth by about 2 percentage points. In other words, adjustment does seem to have caused an increase in the growth of GDP relative to the early 1980s.

Note, however, that this average result for the EIAL countries involves an aggregation of successful and unsuccessful adjustment programs. Typically, the successful adjustment programs improved the rate of growth as a result of higher export growth, which more than offset the effects of the contractionary policies. In other countries, resources did not shift rapidly enough from non-tradable to tradable activities to increase growth, probably because of market distortions and institutional weaknesses.[21]

The estimations of equation (3–9) for the ratio of domestic saving to GDP find a positive and significant coefficient of program effects in the case of the comparison with the period 1981–84 but an insignificant effect with the period 1970–80. When comparing 1985–88 with 1981–84, the increase was 3.7 percentage points of GDP more for the EIAL than for the other countries.

In the case of the ratio of investment to GDP, the adjustment programs appear to have led to a statistically significant drop of 3.5 percentage points of GDP between 1970–80 and 1985–88, whereas the effect between 1981–84 and 1985–88 was small and not significant. The impact of the programs on investment should, however, be interpreted carefully. Since adjustment is not estimated to have reduced growth, it must have increased the average efficiency of investment and utilization of capital. For countries where an integral component of their adjustment programs was to curtail low-efficiency public (and private) investment programs, a decrease in the investment rate was part of adjustment. The result is nonetheless worrisome, since in most countries achievement of sustainable higher growth paths is likely to require an increase in investment in physical (and human) capital above the average levels of the eighties.

Finally, when controlling for other factors, the coefficients of the program effects indicate that the programs also had a positive and significant effect on the ratio of exports to GDP equal to about 6.5 percentage points of GDP between 1970–80 and 1985–88 and 2.5 percentage points of GDP between 1981–84 and 1985–88.

From this analysis it can be concluded that the adjustment lending programs in the EIAL countries contributed to higher GDP growth and higher ratios of exports to GDP, while the ratio of saving to GDP improved with respect to the values reached in the early 1980s. However, the ratio of

investment to GDP decreased on average for program countries over the level reached in the seventies.[22]

Conclusions

Simple comparisons of the growth rates of the countries that had at least two SALs or at least three adjustment loans, with the first one in 1985 or before, show that their performance improved relative to that of the other countries. However, simple comparisons of the performance of groups of countries are poor estimators of the effectiveness of adjustment programs. The reason is that the performance of an adjusting country results from (1) the policies that would have been in place in the absence of adjustment lending from the Bank, (2) world economic conditions, (3) the effects of the Bank-supported program and (4) shocks to the economy (such as droughts and earthquakes). To isolate the net contribution of Bank-supported programs, it is necessary to "control" for non-program determinants of performance.

When the external shocks and conditions that determine the demand for adjustment programs are explicitly controlled for, the evidence shows that adjustment lending programs usually increased the rate of growth of GDP and the ratio of exports to GDP and the ratio of savings to GDP with respect to the level reached in the early 1980s. They decreased the average ratio of investment to GDP over the level reached in the seventies.[23]

The drop in the share of investment in GDP in the initial years of adjustment has, however, to be interpreted carefully. In many countries their economic crisis resulted from a level of public investment, reached in the 1970s, that was unsustainable. Part of the needed adjustment was a reduction in those high levels of inefficient public investment. For private investment, the initial uncertainty that occurs when an adjustment program is started most likely will result in a slowdown of investment. Moreover, despite their disappointing investment performance, the EIAL countries experienced an increase in their rates of GDP growth in 1985–88 relative to 1981–84 and 1970–80. This result must reflect an increase in the efficiency of investment combined with an increase in capacity utilization. However, countries that have reduced most of their policy inefficiencies will need to reach investment rates higher than those of early eighties if they are to achieve a sustainable and acceptable rate of growth in the 1990s. The challenge of the 1990s is to create the conditions needed to generate a rise in the ratio of investment to GDP.[24]

Appendix 1. Information Tables

Table 3-1-1. Country Classification

I. EIAL (early intensive adjustment lending) 25 countries[a]

Bolivia*	Korea, Republic of	Pakistan*
Brazil	Madagascar*	Philippines
Chile	Malawi*	Senegal*
Colombia	Mauritania*	Tanzania*
Costa Rica	Mauritius	Thailand
Côte d'Ivoire	Mexico	Togo*
Ghana*	Morocco	Turkey
Jamaica	Nigeria*	Zambia*
Kenya*		

II. OAL (other adjustment lending) 25 countries[b]

Argentina	Guinea*	Sierra Leone*
Bangladesh*	Guinea-Bissau*	Somalia*
Burkina Faso*	Guyana*	Sudan*
Burundi*	Honduras	Tunisia
Central African Rep.*	Hungary	Uruguay
China*	Indonesia	Yugoslavia
Congo, People's	Mali*	Zaire*
Republic of the	Niger*	Zimbabwe
Ecuador	Panama	

III. NAL (no adjustment lending) 28 countries[c]

Algeria	Haiti*	Peru
Benin*	India*	Portugal
Botswana	Jordan	Rwanda*
Cameroon	Liberia*	Sri Lanka*
Dominican Republic	Malaysia	Syrian Arab
Egypt, Arab	Myanmar*	Republic
Republic of	Nicaragua	Trinidad and
El Salvador	Oman	Tobago
Ethiopia*	Papua	Venezuela
Greece	New Guinea	Yemen Arab
Guatemala	Paraguay	Republic*

Note: * Low-income countries are IDA countries; middle-income countries are non-IDA countries.
a. EIAL are countries that have received two Structural Adjustment Loans (SALs) or three or more adjustment operations, with the first adjustment operation in 1985 or before.
b. OAL are other adjustment lending countries.
c. NAL are countries that did not receive adjustment loans in the period 1980 to 1989.
Source: World Bank.

Table 3-1-2. Indicators of Performance: EIAL Countries

	GDP1	GDP2	GDP3	INV1	INV2	INV3	SAVDOM1	SAVDOM2	SAVDOM3	EXP1	EXP2	EXP3
Bolivia	0.048	-0.027	0.000	0.223	0.108	0.091	0.208	0.174	0.091	0.294	0.261	0.250
Brazil	0.084	-0.005	0.048	0.238	0.178	0.176	0.210	0.190	0.221	0.079	0.119	0.128
Chile	0.024	-0.007	0.053	0.161	0.139	0.149	0.145	0.109	0.173	0.158	0.231	0.265
Colombia	0.059	0.020	0.045	0.186	0.209	0.171	0.192	0.171	0.211	0.155	0.138	0.177
Costa Rica	0.058	0.003	0.037	0.222	0.166	0.226	0.145	0.167	0.215	0.275	0.301	0.310
Côte d'Ivoire	0.062	-0.002	0.014	0.200	0.164	0.096	0.217	0.161	0.158	0.350	0.356	0.310
Ghana	-0.001	-0.016	0.053	0.072	0.048	0.060	0.071	0.042	0.045	0.132	0.073	0.082
Jamaica	-0.011	0.013	0.008	0.264	0.190	0.165	0.188	0.097	0.119	0.493	0.503	0.712
Kenya	0.058	0.022	0.062	0.306	0.214	0.187	0.261	0.191	0.178	0.371	0.261	0.255
Korea, Rep. of	0.095	0.088	0.106	0.288	0.310	0.322	0.320	0.290	0.391	0.242	0.370	0.421
Madagascar	0.003	0.031	0.020	0.198	0.101	0.108	0.107	0.000	0.010	0.155	0.099	0.096
Malawi	0.063	0.014	0.023	0.320	0.193	0.120	0.168	0.148	0.094	0.227	0.208	0.231
Mauritania	0.017	0.004	0.037	0.282	0.375	0.257	0.078	-0.012	0.172	0.372	0.469	0.533
Mauritius	0.066	0.040	0.089	0.297	0.208	0.328	0.295	0.197	0.395	0.527	0.470	0.580
Mexico	0.052	0.019	0.005	0.227	0.210	0.154	0.207	0.244	0.191	0.098	0.142	0.167
Morocco	0.056	0.027	0.056	0.251	0.241	0.242	0.248	0.144	0.202	0.214	0.180	0.187
Nigeria	0.065	-0.047	0.027	0.194	0.159	0.079	0.207	0.119	0.089	0.223	0.112	0.122
Pakistan	0.047	0.066	0.067	0.190	0.190	0.187	0.096	0.147	0.178	0.129	0.132	0.144
Philippines	0.063	0.004	0.020	0.264	0.254	0.146	0.230	0.205	0.164	0.183	0.207	0.260
Senegal	0.025	0.031	0.044	0.184	0.158	0.146	0.038	0.010	0.025	0.268	0.298	0.246
Tanzania	0.051	0.006	0.036	0.256	0.208	0.200	0.162	0.110	0.075	0.194	0.131	0.102
Thailand	0.072	0.062	0.068	0.273	0.261	0.241	0.221	0.209	0.221	0.217	0.250	0.317
Togo	0.034	-0.017	0.032	0.338	0.248	0.215	0.267	0.201	0.124	0.269	0.453	0.433
Turkey	0.059	0.047	0.062	0.220	0.204	0.204	0.140	0.142	0.150	0.072	0.154	0.212
Zambia	0.007	0.002	0.029	0.411	0.149	0.148	0.447	0.113	0.145	0.466	0.367	0.342
Average	0.046	0.015	0.042	0.243	0.195	0.177	0.187	0.143	0.161	0.247	0.251	0.276

Note: GDP_: rate of growth of GDP; INV_: ratio of gross domestic investment to GDP; SAVDOM_: ratio of gross domestic saving to GDP; EXP_: ratio of total exports to GDP. The numbers after the variables mean period 1 (1970-80), period 2 (1981-84) and period 3 (1985-88).
Source: Authors' calculations.

Appendix 2. Variables Used in the Analysis

All the data used in the analysis were taken from the World Bank's ANDREX data base except the real exchange rate, which came from IMF statistics. The sample consists of 77 developing countries, which are listed in appendix 1, table 3-1-1 by group and by middle- and low-income. The sample period is 1970-88.

The variables are defined for three periods: 1970-80 (first); 1981-84 (second); and 1985-88 (third). The number following the variable is the period, i.e., GDP1 is the rate of GDP growth in period one. Variables with a number 4 mean period 3 relative to period 1, with number 5, period 3 relative to period 2, and with number 6, period 2 relative to period 1.

Following is a description of the variables:

(1) For periods 1, 2 and 3

GDP_	rate of GDP growth
INV_	ratio of domestic investment to GDP
SAVDOM_	ratio of domestic saving to GDP
EXP_	ratio of total exports to GDP

(2) For periods 1 and 2

RER_	real exchange rate index
FISC_	ratio of the fiscal deficit to GDP

(3) Others

SHOCK1	total external shock (positive), period 2 relative to period 1
SHOCK2	total external shock (positive), period 3 relative to period 1
SHOCK3	total external shock (positive), period 3 relative to period 2
NETF6	change in the ratio of non-official external financing to GDP, period 2 relative to period 1.

(4) Dummy variables

D	1 for EIAL countries (program countries), 0 otherwise
D1	1 if a country had a recurrent program with the IMF, 0 otherwise
D2	1 if a country was African, 0 otherwise
D3	1 if a country was Latin American, 0 otherwise
D6	1 if a country was middle-income, 0 otherwise
D7	1 if a country was highly indebted, 0 otherwise
DINFLAC	1 if a country had a rate of inflation over 60 percent in period 2, 0 otherwise.

Notes

1. Econometric or CGE-type models are usually used to study program effectiveness in individual countries. See, for example, Corbo and de Melo (1989), Condon, Corbo and de Melo (1990), and Bourguignon, Morrisson and Suwa (1990).

2. Table 3–1–1 in appendix 1 lists the countries in each group.

3. The World Bank introduced adjustment lending in 1980 to facilitate this adjustment. The main rationale was that a substantial adjustment could be made easier and its cost reduced by spreading it over time. In particular, to expand exports requires time to build an export capacity and develop markets. (See Corbo and Fischer 1990.)

4. As explained later, the before-and-after comparison is a very poor measure of program effects. However, it does provide measures of actual changes in given indicators.

5. Table 3–1–2, which presents the performance of each EIAL country in the three periods, shows that only 13 of the 25 EIAL countries had a higher average rate of growth in the third period than in the first period. This table also shows wide differences in performance, indicating that a variety of factors seem to have been determining performance. A comparison of the rates of growth of GDP for the second and third periods indicates that 22 out of 25 EIAL countries improved their performance. Often the improvement in the external environment accounted for part of this improvement, but the effect of the programs could have been just as important.

6. When comparing 1985–88 with 1970–80, the investment share in GDP decreased or stayed constant in every country but Korea, Costa Rica and Mauritius. Between 1981–84 and 1985–88, the ratio of investment to GDP increased in only 7 of the 25 EIAL countries.

7. As shown in table 3–1–2, between the first and third periods the rate of saving in 10 of the 25 EIAL countries rose. When comparing periods two and three, the domestic saving rates increased in 16 of the 25 EIAL countries.

8. In 15 of the 25 EIAL countries, the export to GDP ratio improved between the first and third periods. Between 1985–88 and 1981–84, it increased in 17 of the 25 EIAL countries.

9. This definition was used in Goldstein and Montiel (1986) and Khan (1988).

10. Goldstein and Montiel (1986) outline a procedure for removing the sample-selectivity bias from control-group estimates of the effects of the program when the selection of program countries is non-random.

11. To avoid a potential specification error, a predetermined dummy that takes a value of one for countries with an IMF program in 1985 or before was also included in the estimation. Of the sample of 25 EIAL countries, 23 undertook a program with the IMF before that they undertook one with the World Bank. Of the other two, only one, Nigeria, undertook a program with the IMF after 1985—during 1987—while Colombia did not undertake a program with the IMF in 1985, nor has it since.

12. As x represents the counterfactual scenario—the policies that would have been undertaken in the absence of the program—it is directly observable only for non-program countries and must be estimated for program countries.

13. In their estimations of the model, Goldstein and Montiel (1986) assume that both error terms are uncorrelated.

14. Equation (3–9) is the reduced form used by Goldstein and Montiel (1986) to estimate the effects of the IMF program.

15. This solution to the selectivity-bias problem of an instrumental variable method means that there is no need to assume that the error terms of equations (3–4) and (3–5) are uncorrelated.

16. The instrumental variables method used here is more efficient than the two-stage least squares method suggested by Barnow, Cain and Goldberger (1981), principally because the robustness of the two-stage method depends on the proper specification of the status equation and on the distribution assumption made in the estimation of equation (3–10) more than the instrumental variables procedure does. In addition, with the instrumental variables estimation, there is no need to correct the standard errors obtained from equation (3–9), while the standard errors obtained from a two-stage least squares estimation must be corrected. Because d_i has been estimated, the standard errors underestimate the true standard errors.

17. The relevant period of comparison would be the period before the program was put in place, but as some programs were initiated in the early 1980s, the 1970–80 was a better base period. In any case, results are reported for both base periods.

18. The dummy variable DINFLAC was defined with a value of one if a country has a rate of inflation over 60 percent per year in period two. Countries with high levels of inflation were expected to be less likely to undertake a program, because before receiving a loan from the World Bank, they would have to have achieved a certain level of progress in reducing their internal disequilibrium.

19. For the modified control-group approach the results for the ratios are reported in constant prices only.

20. Only the identification of the effect of Bank programs was of interest in the results (shown in table 3–8A and B). Some of the coefficients for the other variables on the right-hand side are not statistically significant most of the time, in part because of high collinearity.

21. Because IMF programs were also in place in many of the countries in the sample, a dummy was used for the presence of those programs. However, the dummy was never significant, and the results for the effectiveness of Bank-supported programs were practically identical to the ones without the dummy.

22. When working with ratios at current prices, the changes in GDP growth and the ratios of saving to GDP and exports to GDP are statistically significant with respect to both periods. In contrast, the change in the ratio of investment to GDP was negative but not statistically significant with respect to both base periods.

23. Conway (1990), using another statistical approach for a sample of 76 developing countries, also concluded that there was a significant association between participation in the World Bank adjustment lending program on the one hand and more rapid real economic growth, improved current account as a percentage of GNP and lower ratio of domestic investment to GNP on the other.

24. The role of policies in generating a rise in investment is discussed in Serven and Solimano (1990).

References

Barnow, B. S., G. G. Cain and A. S. Goldberger. 1981. "Issues in the Analysis of Selectivity Bias." In W. E. Stromsdorfer and G. Farkas (eds.), *Evaluation Studies Review Annual* 5:43–59. Beverly Hills, Calif.: Sage.

Bourguignon, F., C. Morrisson and A. Suwa. 1990. "Structural Adjustment Packages: A CGE-Counterfactual Analysis Applied to Morocco." Mimeo. World Bank. Washington, D.C. August.

Condon, T., V. Corbo and J. de Melo. 1990. "Exchange Rate-Based Disinflation, Wage Rigidity and Capital Inflows: Tradeoffs for Chile 1977–81." *Journal of Development Economics* (January).

Conway, P. 1990. "How Successful Is World Bank Lending for Structural Adjustment?" Mimeo. University of North Carolina. Chapel Hill.

Corbo, V., and J. de Melo. 1989. "External Shocks and Policy Reforms in the Southern Cone: A Reassessment," 235–58. In G. Calvo, et al. (eds.), *Debt, Stabilization and Development: Essays in Memory of Carlos Diaz-Alejandro.* London: Basil Blackwell.

Corbo, V., and S. Fischer. 1990. "Adjustment Programs and Bank Support: Rationale and Main Results." Mimeo. World Bank. Washington, D.C. August.

Goldstein, M., and P. Montiel. 1986. "Evaluating Fund Stabilization Programs with Multicountry Data: Some Methodological Pitfalls." *IMF Staff Papers* 33(2):314–44.

Heckman, J. 1978. "Dummy Endogenous Variables in a Simultaneous Equation System." *Econometrica* 46:931–60.

———. 1979. "Sample Selectivity Bias as a Specification Error." *Econometrica* 47:153–61.

Khan, M. 1988. "The Macroeconomic Effects of Fund-Supported Adjustment Programs: An Empirical Assessment." Mimeo. International Monetary Fund. Washington, D.C.

McFadden, D. 1974. "The Measurement of Urban Travel Demand." *Journal of Public Economics* 3:303–28.

Serven, L., and A. Solimano. 1990. "Economic Adjustment and Investment Performance in Developing Countries: The Experience of the 1980s." Manuscript. World Bank. Washington, D.C.

Comment

Paul Mosley

I regard this chapter as an excellent econometric reinforcement of the conclusions reached more informally by the Bank's first Report on Adjustment Lending (RAL-1) (World Bank 1988), namely, that such lending has a tendency to improve exports and the balance of payments, depress investment and marginally raise income. I am naturally encouraged that these results broadly parallel those our own research team reached using a different methodology (Mosley, Harrigan and Toye 1990). However, the experience of that research suggests to me that it may be possible to extend the analysis of this paper at the levels of both method and interpretation. I will take those possibilities in sequence.

Method

After briefly discussing, and leaving to one side, the before-and-after and simple control-group approaches to policy evaluation, the paper settles for a modified control-group approach in which the policy instruments are the independent variables in a regression containing world economic conditions, policy variables that would apply in the absence of a program, policy variables associated with the program, and random disturbances. Although I am sure this is the right general approach, I have two worries about the way it has been applied here. The first concerns the representation of "policy variables associated with the program" as a one-zero dummy variable (EIAL countries/others). This representation makes the program (EIAL) countries look as though they were all responding to an identical stimulus, whereas in fact the compliance of recipient governments with the policy conditions attached to Bank adjustment loans varied enormously across countries, from nearly 100 percent in Turkey (an example from among the EIAL countries) to close to zero in Kenya, with a vast spread in between. In other words, what "program countries" were responding to was in some cases a flow of money plus very substantial policy reform, in some cases a flow of money plus mild or unsustained policy reform, and in some cases, de facto, a flow of money only. Given this situation, I believe the right specification is to have the size of the financial flow attached to a program and the degree of implementation of that program as separate independent variables in the estimating equation. If this step is taken, then what results for the period 1980–86 (Mosley, Harrigan and Toye 1990, table 7.1) is the following: a weak positive coefficient of Bank programs on GDP growth emerges (as in the study) as a result of a significant positive

(and lagged) coefficient on program compliance; however, it is almost canceled out by a significant *negative* (and unlagged) coefficient on program finance (I stress this result is out-of-date and not directly comparable with the results from 1986–88). Our tentative interpretation is that those adjustment-lending countries that bit the bullet and implemented the conditions did indeed benefit, but those that accepted the money and did not implement the conditions were thereby enabled to postpone the reform, so that on balance the impact of adjustment lending was to buy time rather than to transform the economy structurally (relevant cases are Guyana, Jamaica and Ecuador pre-1988). I am by no means sure that these results will hold up over time or that we have got the lag structure right, but I do insist that the money and conditions attached to adjustment lending have to be separated out as determinants of performance if we are to understand what is going on.

My second worry concerns the direction of causation. In a previous Bank/Fund symposium on growth-related adjustment (whose proceedings were also edited by Vittorio Corbo [Corbo, Goldstein and Khan 1987, p. 91]), the president of the Korea Development Institute opined that "in the case of South Korea at least it is not clear whether liberalization is the result of good economic performance or vice versa." By the same token it is not clear to me whether the fairly significant estimated effects of the "program dummy" variable in table 3–8A represent the influence of liberalization on growth (as they appear to) or the influence of growth on liberalization. In principle, the simultaneous causation is captured by using an instrumental variables technique for the estimation of the policy impact in which the program dummy is endogenous; however, the list of variables included in the estimating equation listed in table 3–7[1] does not include growth of GNP or of exports. Hence I am skeptical that the estimation properly took into account the feedback from growth to liberalization. As the exploratory research of Fei and Ranis (1988) on the political economy of policy change has indicated, this feedback is complex and possibly non-linear, and may be difficult to model.

The Results and Their Interpretation

As can be seen from table 3–C–1, the results obtained from the Mosley, Harrigan and Toye study of adjustment lending (1990), using not only the simple and modified control-group methods found in this chapter but also the single-country models of Malawi and Morocco simulated with and without adjustment lending, are very similar to those obtained here, with the exception that the impact of Bank

Table 3–C–1. All Evaluation Methods: Summary of Results

Evaluation method	*Real GDP growth*	*Real export growth*	*Investment GDP*	*Balance of payments*	*Private foreign finance*	*Unemployment*
	Indicators of performance					
Tabular comparisons with control						
This study [a]	Weak	+	-	ve	..	..
World Bank [b]	Neutral	+	-	ve	..	..
Multiple regression						
This study [c]	Weak + (finance only weak -)	+	Weak	ve	Neutral	..
Model-based simulations [d] (from present chapter)						
Malawi	..	Ambiguous	..	-	..	..
Morocco	+	+	Neutral	Neutral	..	Neutral

Note: .. Not measured. Weak means statistically not significant. Neutral means that impact produces a change of less than 10 percent.
a. Chapter 6, Mosley, Harrigan and Toye (1990).
b. World Bank (1988).
c. Chapter 7, Mosley, Harrigan and Toye (1990).
d. Chapter 8, Mosley, Harrigan and Toye (1990).
Source: Mosley, Harrigan and Toye (1990, table 8.8).

programs on GDP is just significant (at the 7.1 percent level) in this study (table 3–8A) and not significant in ours. Our additional findings are that the impact of Bank adjustment lending on both inward flows of commercial finance and on the distribution of income appear to be neutral. However, we have a difference of interpretation with Vittorio Corbo and Patricio Rojas concerning the universally reported negative coefficient of adjustment on investment. Their argument is that

> Part of the needed adjustment was a reduction in those high levels of inefficient public investment. For private investment, the initial uncertainty that occurs when an adjustment program is started most likely will result in a slowdown of investment.

The Second Report on Adjustment Lending (RAL-2) (World Bank 1990) cites other possible reasons for the decline in investment levels, including deterioration in government fiscal conditions, increased economic instability and the debt overhang. There is little reason why these should apply principally to the EIAL countries, which had the greatest decline in investment.

Both the chapter and RAL–2 leave out three crucial elements in the investment story in adjustment lending countries. In chronological sequence they are:

(1) *Compression of the government development budget:* in the initial stages of adjustment, when the Fund insists on a reduction in the government budget deficit, governments almost always choose cuts in public investment as the

means toward this goal, since all other options—cuts in recurrent expenditures, tax increases and increases in user charges—are either politically unfeasible or take a long time even to have an impact in the short term.

(2) *Expenditure switching:* program lending countries, whose own financial inflows, particularly from the Bank, were progressively switched from project to program assistance during the 1980s, thereby received more latitude to switch the utilization of those flows from investment to consumption, a temptation that was only resisted by the stronger adjusting countries such as Korea and Thailand. Most of the weaker adjusting economies gratefully surrendered to the temptation, in particular in Sub-Saharan Africa.

(3) *Private sector knock-on effects:* in many developing countries, a reduction in public investment, instead of encouraging private investment through a crowding-in mechanism, has been associated with a decline in private investment, probably through a Keynesian income transmission mechanism. Again, this decline is more pronounced in the poorer developing countries. Between them these effects have not just eliminated the fat of ill-conceived investment projects, they are also cutting into the bone, as I believe the Bank is well aware.

The first of these three effects is a response not to the Bank but to the Fund, so that the Bank should not take the blame. In terms of explanation, I think the right response is to model Bank and Fund inflows as separate independent variables. When we did so (Mosley, Harrigan and Toye 1990, chapter 7), our finding was that investment fell further in those adjusting countries that had repeated Fund pro-

grams through the 1980s than in those that had only one at the beginning of the decade.

In summary, then, I am confident that all the arithmetic signs on the coefficients are correctly assigned. However, I feel that a disaggregation among the varieties of adjustment experiences would have exposed a lot of differences in effectiveness that do not emerge from the analysis by Corbo and Rojas. Those findings might in turn prompt the Bank to reassess the conditionality it prescribes, particularly in the poorer developing countries.

Notes

1. Balance of payments on the current account, share of non-official external financing in GDP, real exchange rate, ratio of debt to GDP, interest rate, country dummies.

References

Corbo, V., M. Goldstein and M. Khan. 1987. *Growth-Oriented Adjustment Programs*. Washington D.C.: International Monetary Fund–World Bank.

Fei, John C. G., and Gustav Ranis. 1988. "The Political Economy of Development Policy Change: A Comparative Study of Thailand and the Philippines." Typescript. Yale University. New Haven, Conn.

Mosley, P., J. Harrigan and J. Toye. 1990. *Aid and Power: The World Bank and Policy-based Lending*. London: Routledge.

World Bank. 1988. *Adjustment Lending: An Evaluation of Ten Years of Experience*. Policy and Research Series # 1. Washington, D.C.: World Bank.

———. 1990. *Adjustment Lending Policies for Sustainable Growth*. Policy and Research Series # 14. Washington, D.C.: World Bank.

4

World Bank-Supported Adjustment Programs and Living Conditions

Anne Maasland and Jacques van der Gaag

Countries adopt structural adjustment programs to raise the economy's rate of growth and the living standards of their people. There is, however, a lag before the response to the programs emerges, and policies designed to improve living standards in the future may, in the short term, reduce and redistribute consumption.

This chapter addresses whether World Bank-supported adjustment lending programs have had an adverse short-run impact on living conditions. It first looks at how workers fared during adjustment by examining wages, employment and other sources of labor income during the seventies and eighties. Next, it examines the evolution of various indicators of social welfare, along with the expenditures for and delivery of health care, education and other social services, in countries undertaking Bank-supported adjustment programs.

In assessing the relationship between adjustment policies and the income and welfare of individuals, the focus must, for the most part, be on the empirical evidence. While theory provides a framework for the assessment, it has its limitations. Often theory predicts counteracting effects, so that determination of the net effect must be empirically-based. Theory may predict the direction of change, but the magnitude again is an empirical matter. Furthermore, theory often abstracts from some possibly relevant empirical situations. Thus, the focus here is on empirical evidence derived from indicators of living conditions.[1]

Even the empirical studies, however, offer conflicting conclusions. The United Nations International Children's Emergency Fund (UNICEF), in its study *Adjustment with a Human Face*, drew attention to the possible negative social implications of adjustment policies that focused solely on macroeconomic indicators (Cornia, Jolly and Stewart 1987). Others have suggested that UNICEF may have overstated the case. For example, a critical review of UNICEF's work concluded that in most of the countries studied, infant and child mortality had declined while the indicators of nutritional status and school enrollment had risen, sometimes despite decreased government expenditures on health and education (Preston 1986). A recent study commissioned by the Bank's Operations Evaluation Department (OED) assessed the analytical base underlying UNICEF's conclusions and stated that it is possible that adjustment programs may have had deleterious effects on health and nutrition but that the empirical evidence presented to date was not very convincing because of confusion among levels, trends, deviations from the trends and questionable interpretations of the data.[2]

The conclusions are contradictory for at least three reasons. First, there is the problem of identifying a counterfactual scenario. It is inherently difficult to determine what would have been the distributional outcome in the absence of adjustment policies. However, a counterfactual scenario is needed to determine whether alternative policies would have done better or worse, to isolate the effects of adjustment programs from other factors, and to establish causality. Second, socioeconomic and income data on living conditions are scarce and often of dubious quality. This limitation is particularly true of data on the poor; many of the poor work in the informal sector, whereas official statistics usually do not include data on output and other aspects of the informal sector. Third, adjustment programs are relatively new, and their long-run positive impact could take longer to emerge than the experience with adjustment has run so far. Nevertheless, while a complete analysis of adjustment programs needs to cover the entire adjustment period, interim evaluations, such as those here, are necessary.

With these difficulties in mind, this paper looks at the status of welfare indicators during the 1980s and compares it with that in the 1970s. It also examines whether trends in these indicators differed for countries that received Bank-supported adjustment lending and countries that did not. The

welfare indicators examined included both labor and social conditions. There was only limited data on distributional changes over time, but the data on average living standards still shed some light on major changes in the status of the middle class and the poor. Of necessity, the analysis looked at the short-run impact, since many countries did not have data past 1987.

The analysis used a categorization of countries based on the World Bank's adjustment lending operations.[3] The analysis compares means and medians for the four country groupings (EIAL, OAL, NAL+ and NAL-) for the time period 1985–88 relative to 1970–80 and 1981–84. This comparison is simplistic in that it does not account for country-specific external shocks and domestic policies that would have been implemented without adjustment lending. For a few of the variables, econometric estimation was used to control for these factors. In addition, growth regressions were estimated for some variables to test whether there were significant deviations from trend growth during the loan years.[4]

The EIAL countries were of interest because they were the ones in which the Bank had invested heavily, with the expectation of policy reform. They were also the ones that implemented loans and policies early on, so that the lags in responses may be over and data may have accumulated. While all EIAL countries attempted some policy reform, some were more successful than others. Thus the EIAL averages reflect the outcome for countries that received Bank-supported policy advice and adjustment lending, rather than the outcome for countries that were successful adjusters.

The evidence from the labor indicators did not reveal a systematic relationship between Bank-supported adjustment programs and short-run effects on labor conditions. Overall, it appears that rural incomes improved on average in the EIAL countries but those of urban labor suffered. In the case of the economy-wide compensation of employees as a share of gross domestic product (GDP), the EIAL median was the same in 1985–87 as in the 1970s, and in 13 of the 16 countries there were no significant changes in the employee share during the loan years. In the rural sector, the average and median rates of growth of real rural incomes per capita in the EIAL countries were higher in 1985–87 than in the 1970s, and agricultural wages improved for about half the EIAL countries. In the urban sector, there was slightly more evidence that formal labor in the manufacturing sector suffered: 7 of 20 countries experienced negative shifts in the share of the wage bill in manufacturing value added during the loan years, and both the averages and medians in the EIAL countries were lower in 1985–87 than in the 1970s. It is unclear whether the adjustments for manufacturing labor were from an unsustainably high position or if they suffered more than other groups did.

The evidence from the social indicators shows that the short-run changes were not systematically related to Bank-supported adjustment lending. The short-run indicators for living conditions did not deteriorate in the EIAL countries, and the long-run indicators continued to improve because of past investments. However, there were declines in government social expenditures in some EIAL countries, a trend that may have negative effects in the future. The specific findings are that adjustment lending programs appear to have raised the rate of growth of per capita consumption in EIAL countries relative to non-EIAL countries. For all country groups, nutrition status improved after 1983, the coverage of immunizations increased, and there was continued progress in reducing mortality rates. However, the shares of health and education in overall expenditures declined on average in the EIAL countries, as was true with the average rates of primary school enrollment.

Labor Indicators

Negative shocks to an economy often imply a reduced standard of living for the population. During adjustment, real incomes relative to the rest of the world have to adjust if the economy is to remain competitive. Conflicts between labor and the owners of capital and, within labor, between the different income classes or socioeconomic groups arise over which incomes will have to adjust.

Since data on incomes within labor are lacking, the focus here is on how formal labor fared relative to other income earners. The effect of adjustment on labor is an important political issue because the impact of adjustment programs on wage earners has implications for the sustainability of the program. Wage earners in manufacturing can be a politically powerful group, especially if labor is unionized and represented by a political party. Wage earners in the government sector are also potentially important political actors.

The official data on labor indicators generally refer, as noted, only to labor in the formal sector. As such, they provide information on the living standards of the middle class and contribute only limited information on the incomes of the poor, who are in the informal or the agricultural sectors and are often self-employed. There is, however, other direct evidence about the earnings of the lower income population. Wage earners in construction and agriculture are usually lower income earners since their labor is often unskilled, and wage movements in these areas may reflect some changes in poverty. In addition, there are data on the real incomes of the rural sector where most of the poor reside.

This section on labor indicators looks first at the economy-wide compensation of employees, at real wages and at unemployment. It then examines data for the rural and urban sectors separately.

Economy-Wide Employee Compensation

Data for the average and median economy-wide compensation of employees as a share of GDP for three time periods

and three country groups are displayed in table 4–1. The data do not reveal whether changes in the share received by labor resulted from changes in employment or in wages. Instead, they combine both and reveal the amount of total available production that organized labor receives. This variable is appropriate for an analysis of the equity impact. Aggregate demand will contract following a stabilization program, and if this contraction leads to lower GDP, the question is whether labor's share of the burden is excessive, that is, whether its share of GDP declines.

The data in table 4–1 are from a decomposition of GDP into its cost components, which consist of net indirect taxes, consumption of fixed capital, compensation of employees and operating surplus. Employee compensation measures the total cost of labor to employers, including wages and salaries before deductions and employers' contributions to social security, pensions, insurance and similar schemes. It is calculated directly from sources such as government and sectoral surveys (sometimes updated by wage and employment indices), social security tax payments and so on, depending on the country. The operating surplus is the residual item.

Table 4–1 shows that the overall wage share of total GDP received by labor was low. This phenomenon reflects the fact that in many developing countries the majority of people were not employees receiving wages but instead were self-employed in the informal or agricultural sectors. The incomes of the latter are included in the residual operating surplus category, which then becomes a mix of the incomes of both rich and poor; the operating surplus includes both profits on capital and returns to small-scale enterprises and smallholders. For this reason, total compensation of employees is not a relevant indicator for issues involving the size distribution of income. Instead, it should be viewed as an indicator of living standards for one segment of the middle class. It may also be revealing about the political sustainability of policy changes. Wage labor in the formal sector can be more easily organized because the workers are often located in urban areas and in large firms, and they can become a politically vocal group that is more likely to take action against income losses.

The average compensation for 30 countries for which there were data declined in the 1985–87 period relative to the 1970–80 and 1981–84 periods (table 4–1).[5] The decline in the latter period was attributable to trends in the 10 EIAL countries: their average wage share was 38.0 percent in the 1970s and 38.2 percent in 1981-84, but in 1985-87 it declined to 35.2 percent. Labor was able to maintain its share during the recession in 1981-84 but experienced declines thereafter. The average share of labor for the OAL countries declined in the second period, while the NAL group had continual increases.

Averages can be affected by significant underperformers or overperformers. An examination of the number of coun-

Table 4–1. Compensation of Employees as a Share of Total GDP
(percent)

Country	Number of countries	1970–80	1981–84	1985–87
EIAL	10			
Average		38.0	38.2	35.2
Median		38.0	41.5	38.1
OAL	7			
Average		34.9	31.7	31.5
Median		38.3	28.4	32.3
NAL	13			
Average		36.0	37.5	37.7
Median		40.0	40.1	37.5
All countries	30			
Average		36.4	36.4	35.4
Median		38.3	39.1	37.4

Source: United Nations (various issues, b).

tries with increases and decreases in the share of employee compensation in GDP shows that 6 of the 10 EIAL countries experienced a decrease between 1981–84 and 1985–87 (and similarly for 1970–80 and 1985–87).[6] Korea and Thailand had sustained increases over all three time periods, whereas Jamaica, Mauritius, Mexico and Tanzania had continual decreases. In the NAL countries, 5 of 13 had decreases in the share of employee compensation from 1981–84 to 1985–87 and 7 of 13 had decreases between 1970–80 to 1985–87.

Several tests can be used to compare the changes in the share of labor following adjustment. The simple before-and-after approach looks at the average for EIAL countries before and after adjustment. The control-group approach compares the average change in the EIAL countries over two time periods with the average change in non-EIAL countries.[7] When comparing the average for 1981–84 with that for 1985–87 (1970–80 with 1985–87), both approaches show a decline of 3.1 (2.8) percentage points in the share of income going to labor. These results are statistically significant at the 5 percent level for the change from 1981–84 to 1985–87 but are insignificant for the change from 1970–80 to 1985–87. Further, after controlling for pre-program and external economic conditions (the modified control-group approach), adjustment lending programs still led to negative changes in labor's share of GDP.

These changes suggest that EIAL countries experienced a worsening in labor's position in the 1985–87 period compared with 1970–80 and 1981–84 and compared with the average experience of non-EIAL countries. However, an examination of the medians did not yield so clearcut a conclusion, and comparing medians to averages can reveal changes in the distribution of labor's share across countries. In the 10 EIAL countries, the medians and averages were equal in 1970–80, indicative of a relatively even distribution

around the mean for labor's share across countries (see table 4–1). During the recession period 1981–84, the medians increased, whereas the means stayed about the same, an indication that the distribution of countries became skewed to the left: more countries were to the right of the mean, but some outliers with low shares pulled the average down.[8] Closer examination shows that labor's share for countries in the middle of the distribution shifted up, whereas at the two extremes it fell, so that the average remained the same. In the 1985–87 period, both the means and medians were lower than in 1981–84, and the whole distribution shifted to the left. This latter result supports the conclusion that labor's position deteriorated from 1981–84 to 1985–87. However, a comparison of 1970–80 with 1985–87 shows that the median returned to its original value and that the fall in the mean was the result of declines in the extremes (Tanzania and Jamaica). Most of the countries were clustered between 35 percent and 40 percent in both 1970–80 and 1985–87. It can be argued that the period 1981–84 was one of disequilibrium, with unsustainably high shares of labor, and that adjustment led to a return to the more sustainable values of the 1970s. At any rate, examination of the medians points out that an analysis of averages alone can be misleading.

The medians for the NAL countries show that the distribution of countries was initially skewed to the left but that as the averages increased and the medians fell, the countries became more evenly distributed around the mean by the 1985–87 period. Closer examination shows that the middle of the distribution in 1985–87 fell relative to the distributions of 1970–80 and 1981–84 but that both the low and high extremes increased, a situation that raised the average.

The median may reflect better what was happening to the typical country in each group. If so, the experience of the EIAL countries reveals that the typical EIAL country was doing as well in 1985–87 as in 1970–80. However, there were countries at the extremes that did much worse, and their performance pulled the EIAL average down. The typical NAL country experienced a worsening of its position in 1985–87 in terms of the median, while countries at the extremes raised the average. In short, examination of the medians leads to opposite conclusions from those of the analysis of the averages.

Table 4–2 presents regressions to explain changes in the shares of employee compensation. The employee share of GDP—a combination of wages and employment—should depend on productivity and investment levels, in addition to policy variables. A change in the share of employee compensation between two periods was assumed to depend on the following variables: a change in the ratio of the fiscal deficit to GDP and the real exchange rate (policy variables associated with adjustment programs), GDP growth rates in the initial period, the ratio of investment to GDP in the initial period, and the total external shock (terms of trade and interest rate shocks) between the 1970s and early 1980s.

Table 4–2. Regressions for the Change in the Share of Employee Compensation Between Two Periods

A. 1985–87 versus 1970–80

Variable	Coefficient	Standard error	t-statistic	2-tail significance
C	-10.966	4.869	-2.252	0.034
GDP1	105.338	46.812	2.250	0.034
INV1	18.815	18.363	1.025	0.316
SHOCK1	-0.568	6.711	-0.085	0.933
FISC4	-39.496	21.479	-1.839	0.078
RER4	0.110	0.046	2.370	0.026

R^2	0.409	Mean of dependent variable	-1.233
Adjusted R^2	0.286	Standard deviation of	
Standard error of regression	5.800	dependent variable	6.864
Durbin-Watson statistic	2.123	Sum of squared residual	807.262
Log likelihood	-91.955	F-statistic	3.324

Note: Least squares/dependent variable is COMP4. Number of observations = 30.

B. 1985–87 versus 1981–84

Variable	Coefficient	Standard error	t-statistic	2-tail significance
C	-1.565	2.323	-0.674	0.507
GDP2	-1.055	18.407	-0.057	0.955
INV2	13.524	9.187	1.472	0.154
SHOCK1	6.755	3.181	2.123	0.044
FISC5	0.435	14.681	0.030	0.977
RER5	0.122	0.037	3.270	0.003

R^2	0.569	Mean of dependent variable	-0.974
Adjusted R^2	0.479	Standard deviation of	
Standard error of regression	3.044	dependent variable	4.219
Durbin-Watson statistic	3.041	Sum of squared residual	222.378
Log likelihood	-72.616	F-statistic	6.340

Note: Least squares/dependent variable is COMP5. Number of observations: 30. The variables are defined as follows:

COMP4: Change in employee compensation share between 1970–80 and 1985–87.
COMP5: Change in employee compensation share between 1981–84 and 1985–87.
GDP1: GDP growth rate in 1970–80.
GDP2: GDP growth rate in 1981–84.
INV1: Investment to GDP ratio in 1970–80.
INV2: Investment to GDP ratio in 1981–84.
SHOCK1: Total external shock (terms of trade and interest), 1970–80 versus 1981–84.
FISC4: Change in fiscal deficit to GDP, 1970–80 versus 1985–87.
FISC5: Change in fiscal deficit to GDP, 1981–84 versus 1985–87.
RER4: Change in real exchange rate, 1970–80 versus 1985–87.
RER5: Change in real exchange rate, 1981–84 versus 1985–87.
Source: Authors' calculations.

Several specifications were tried. The one variable that consistently emerged as significant was the real exchange rate. Real devaluations (decreases in the real exchange rate)

were associated with falls in the share of employee compensation. The dependent economy model predicts that the real wage will fall with devaluations if it is assumed that non-tradables are relatively labor-intensive. Since non-tradables consist largely of services, this assumption may be realistic.[9] In the present analysis, the share of employee compensation fell with the devaluations, the implication being that changes in employment did not compensate for any real declines in wages. Other variables had the following effects. High rates of growth of GDP in the initial period were associated with positive changes in the employee share (regression for 1970–80 versus 1985–87); as countries grew, more labor moved into the formal sector. High investment ratios in the initial period had a slightly significant positive association (1981–84 versus 1985–87), since productivity and employment increase as capital deepens and widens. The strong negative external shocks of the early 1980s had a significant negative impact on the share of labor (that is, a positive coefficient for 1981–84 versus 1985–87). Finally, an improvement in the fiscal deficit (a positive change) was associated with a worsening in the share of labor (1970–80 versus 1985–87), since, in the short run, a smaller government deficit often means lower wages and employment for formal labor.

Finally, the time series for each country was examined to determine whether the share of employee compensation deviated significantly during the loan years from overall trend values (table 4–3).[10] The declines in the 1980s could be part of a long-term negative trend that started earlier, in which case they should not be attributed to adjustment lending programs. For each country, the growth in the share of employee compensation over time was estimated and deviations during the loan years tested.[11] This procedure does not establish causality: if the loan years are associated with significant declines in the share of employee compensation, the reason could be that some external event triggered the declines in wages that subsequently led to an adjustment program, rather than that the adjustment programs caused the declines. However, if the loan years are not significantly different from the trends, it is unlikely the share of employee compensation was adversely affected by the adjustment programs.[12]

Table 4–3 shows that the share of employee compensation declined significantly (at the 10 percent level) for two EIAL countries (Colombia and Mexico) during the loan years and for one OAL country (Sierra Leone). None of the other 13 adjustment lending countries for which data were available experienced a significant shift in the share of employee compensation during the loan years. This result suggests that in most countries this variable was not systematically affected by World Bank adjustment programs during the disbursement years.

The EIAL countries had to make increasingly larger interest payments to the rest of the world, which may explain why labor's share of production fell in those countries.

Table 4–3. Significant Deviations in Employee Compensation as a Share of GDP from Trend Growth during the Loan Years
(percent shift from trend growth)

EIAL countries	
Colombia	-16.7
Mexico	-15.8
OAL countries	
Sierra Leone	-30.9

Note: Countries with insignificant shifts
EIAL: Costa Rica, Jamaica, Kenya, Korea, Mauritius, Tanzania, Thailand, Zambia.
OAL: Burundi, Ecuador, Hungary, Panama, Uruguay.
Source: United Nations (various issues, b) for the share of employee compensation; World Bank (1990b, annex table 5.5) for the loan years.

Interest payments were included as part of production in the denominator, but they did not accrue to domestic residents. An examination of the compensation of employees as a share of national disposable income shows that the trends for the averages and medians of labor's share of national disposable income were similar to those of labor's share of GDP. Thus, interest payments did not affect the results.[13] The average decline in labor's share of national disposable income in the EIAL countries was 2.4 percentage points from 1970–80 to 1985–87, about the same as the decline of 2.8 percentage points for labor's share of GDP. Similarly, the EIAL median in 1985–87 returned to the same level as that in 1970–80, the same pattern as was found with labor's share of GDP.

Employee compensation is a combination of wages and employment. If the decline in labor's share is the result of declines in employment, the effect on the distribution of income of the population will likely create greater inequality, since some people would be making zero wage income. Table 4–4 reports general unemployment rates for 22 countries. Of the EIAL countries, two-thirds had a decrease in the rate of unemployment during 1985–87 compared with 1981–84 (Chile, Costa Rica, Ghana, Jamaica, Korea and Mexico). The exceptions were Bolivia, Colombia and the Philippines. Four of five NAL countries—Greece, Peru, Trinidad and Tobago, and Venezuela—had an increase in their unemployment in 1985–87 compared with 1981–84, but in all except Trinidad and Tobago there were recent signs of a recovery. Although the sample is too small for generalizations, it is notable that more than half the EIAL countries experienced improvements in the rate of unemployment to the levels that prevailed in the late 1970s.

To sum up, the averages show that labor's share of production and income fell in the EIAL countries in comparison with the NAL countries in the period 1985–87 compared with 1970–80 and 1981–84. On the other hand, the medians show that in the typical EIAL country in 1985–87 labor regained the share of GDP it held in the 1970s, while

Table 4-4. Unemployment Rates

(percent)

Country	1970–80	1981–84	1985–87
EIAL			
Bolivia	5.6	12.4	19.5
Chile	12.5	14.9	9.6
Colombia	8.9	10.4	12.4
Costa Rica	5.0	8.0	6.2
Ghana	1.0	0.7	0.5
Jamaica	25.8	26.4	24.3
Korea	4.0	4.2	3.6
Mexico	6.3	5.3	4.9
Philippines	4.2	5.7	7.2
Thailand	0.9	2.5	n.a.
OAL			
Argentina	2.5	4.3	5.0
China	5.1	2.8	1.9
Panama	8.5	9.4	11.4
Uruguay	9.4	11.9	11.2
Yugoslavia	11.9	12.6	13.8
NAL			
Egypt, Arab Rep.	4.5	5.9	n.a.
Greece	n.a.	6.5	7.5
Peru	6.6	8.4	10.0
Portugal	7.9	7.9	7.9
Syrian Arab Rep.	4.5	4.5	n.a.
Trinidad and Tobago	11.6	11.2	18.3
Venezuela	5.3	9.2	11.1

n.a. Not available.

Source: International Labour Organisation (various issues [1987]).

the typical NAL country was worse off in this regard. However, the sample was limited, data from some important countries were missing, and the simple before-and-after approach has well-known disadvantages. An examination of the deviations from the trend during the loan years for the share of employee compensation reveals that the majority of countries saw no significant change.

Rural Labor

In 1981–84, the real growth in GDP in the 25 EIAL countries averaged 1.3 percent, whereas the real growth in value added in agriculture was higher at 2.2 percent. This pattern reverses the trend of the 1970s, when GDP growth averaged 4.6 percent and agricultural value added grew by 2.5 percent. In 1985–88, the latter grew by 4.3 percent as compared with real GDP growth of 4.1 percent. Thus, in the 1980s agriculture was an important source of growth in the EIAL countries, with potentially beneficial effects for the rural poor. This growth may have come from a combination of policies: a depreciated real exchange rate that favored agricultural exports; liberalization that reduced the taxes on agricultural exports and tariffs on industrial inputs; the completion of investment projects started in the 1970s; and a

low income elasticity for agriculture as compared with industry and services.

In 1981–84, real agricultural exports in the EIAL countries averaged -1.9 percent growth compared with 0.2 percent growth for total merchandise exports. In 1985–88, both types of exports had much better growth: 6.6 percent for agricultural exports and 8.2 percent for total exports. This growth can be partly attributed to the significant depreciations in the real exchange rate that occurred on average in the 1985–88 period in the EIAL countries.[14]

On the import side, the drop in the growth of agricultural imports (-1.7 percent) in the early 1980s was initially less than that of total imports (-5.9 percent), but by the mid-1980s food imports continued to decline (-3.0 percent) while total imports rose (9.5 percent). This pattern probably reflects import substitution in food as a result of increased domestic production, a trend that would benefit the rural areas. Indeed, an index of per capita food production (Food and Agriculture Organization [FAO] data) shows that food production in the EIAL countries was 3 percent higher in 1985–87 than in 1981–84 (Kakwani, Makonnen and van der Gaag 1990).

Thus, agriculture was an important source of growth and contributed to the improvements in the current account for the EIAL countries. This growth should have improved the distribution of income in the EIAL countries, since the majority of the poor in most countries were located in rural areas.

To examine rural incomes more closely, data on agricultural wages and agricultural purchasing power were collected. The wage indexes for agriculture and the averages for the three time periods are displayed in table 4-5. Two caveats should be noted about the data. First, those for the 1985–87 period were available for only 15 countries, and, second, they were not always comparable across those countries because they were not based on the same units and concepts: for example, in some cases they reflected averages per month or per day; some included payments in kind; and some were minimum wages. These limitations, combined with the small sample size, precluded any averaging.

In four of six EIAL countries—Chile, Costa Rica, Korea and Mauritius—the index of real agricultural wages was higher in 1985–87 than in 1970–80. In two others—Kenya and Pakistan—real wages for agriculture declined. Three NAL countries had higher real agricultural wages in the latter period as compared with 1970–80.

Table 4-6 shows the countries that had significant deviations from the trend growth for agricultural wages during the loan years. In 11 of 18 countries there were no significant deviations, a finding that implies that in most countries the short-run impact of the adjustment programs on agricultural wages was limited. Mexico, the Philippines, Turkey and Yugoslavia showed negative deviations, Costa Rica, Hungary and Uruguay a positive shift. While these regressions
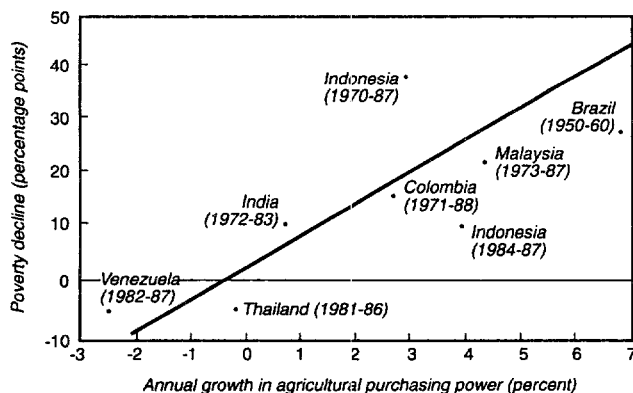
do not establish causality, it is notable that an almost equal number of countries had positive deviations as had negative deviations for agricultural wages during the loan years.

The real agricultural incomes of the rural sector are examined next. There was generally a positive correlation between the reduction of poverty and growth in agricultural purchasing power, as displayed in figure 4–1.[15] Indonesia and India provide an interesting contrast: between 1970 and 1987, Indonesia's headcount poverty index fell by 41 percentage points, while the annual growth in rural purchasing power was 2.9 percent. India experienced a decline in poverty of 11 percentage points from 1972–83 while agricultural purchasing power grew by only 0.7 percent.

Table 4–7 displays the growth rates in per capita agricultural purchasing power for the four country groups. The data show changes in real agricultural income for the rural population as a result of changes in both the prices and quantities of agricultural production.[16] The average growth for the 23 EIAL countries was 2.3 percent in the 1970–80 period, -0.5 percent in 1981–84 and then 2.9 percent in 1985–88. The median values for the EIAL countries had a similar pattern, indicative of an improvement in agricultural purchasing power in the majority of EIAL countries in the 1985–88 period to growth rates higher than in the 1970s. The pattern for the averages and medians of the OAL countries was comparable to that of the EIAL countries. However, their recovery was not quite as good.

The decline in the NAL countries was much larger in the 1981–84 period than it was in the other country groups, and average growth in rural purchasing power continued to be negative (-0.9 percent) in 1985–88. This latter figure was, however, affected by Nicaragua, whose agricultural incomes declined significantly. The median (-0.3 percent) in the NAL countries in 1985–88 was somewhat better. This growth rate was still the only negative one in the three country groups in 1985–88. The recovery in the NAL group from the second

Table 4–5. Real Wage Index in Agriculture
(1980=100)

Country	1970–80	1981–84	1985–87
EIAL			
Chile	71.3	126.0	93.5
Costa Rica	95.8	90.4	97.4
Ghana	123.8	66.3	n.a.
Kenya	104.8	87.3	84.2
Korea	61.1	97.7	106.6
Malawi	123.8	105.4	n.a.
Mauritius	103.8	109.0	123.5
Mexico	88.8	86.1	n.a.
Pakistan	87.7	161.6	66.8
Philippines	106.3	86.9	n.a.
Tanzania	132.3	91.4	n.a.
Turkey	115.0	100.6	n.a.
Zambia	90.8	80.0	n.a.
OAL			
Bangladesh	122.1	104.7	104.1
Burundi	131.9	138.4	117.6
China	96.1	105.3	119.5
Guyana	98.2	98.6	n.a.
Honduras	54.4	110.8	n.a.
Hungary	99.7	100.9	101.6
Uruguay	124.9	87.8	98.2
Yugoslavia	98.7	92.8	84.4
Zimbabwe	95.1	147.6	n.a.
NAL			
India	97.4	100.2	127.7
Myanmar	125.6	92.2	
Poland	78.8	90.4	84.9
Portugal	106.8	106.2	n.a.
Sri Lanka	70.6	86.3	89.1

n.a. Not available.
Source: International Labour Organisation (various issues [1980, 1988]).

Figure 4-1. Poverty and Agricultural Purchasing Power

Source: World Bank (1990b); World Bank and International Monetary Fund data.

Table 4–6. Significant Deviations in Real Agricultural Wages from Trend Growth during the Loan Years
(percent shift)

EIAL countries	
Costa Rica	16.8
Mexico	-19.9
Philippines	-15.4
Turkey	-19.7
OAL countries	
Hungary	4.9
Uruguay	37.7
Yugoslavia	-10.4

Note: Countries with insignificant shifts
EIAL: Chile, Ghana, Kenya, Korea, Malawi, Mauritius, Pakistan, Tanzania
OAL: Burundi, Guyana, Zimbabwe.
Source: International Labour Organisation (various issues) for the agricultural wage data; World Bank (1990b, annex table 5.5) for the loan years.

Table 4–7. Growth in Per Capita Real Agricultural Purchasing Power
(percent)

Country	Number of countries	1970–80	1981–84	1985–88
EIAL	23			
Average		2.3	-0.5	2.9
Median		1.8	-0.6	2.1
OAL	23			
Average		1.9	-0.3	1.6
Median		1.6	0.5	1.1
NAL+	11			
Average		1.5	-0.7	-0.6
Median		2.7	0.7	-1.7
NAL-	13			
Average		2.8	-2.5	-1.2
Median		3.3	-4.5	2.2
NAL	24			
Average		2.2	-1.7	-0.9
Median		3.1	-1.6	-0.3
All countries	70			
Average		2.2	-0.8	1.2
Median		1.9	-0.6	0.9

Source: World Bank and International Monetary Fund.

to third periods was significant, but the growth rate of rural incomes in 1985–88 still remained below that of the 1970s. What is surprising is that the average growth in the purchasing power of the rural sector in the NAL+ countries in the third period was -0.6 percent, while the median was -1.7 percent. Countries with a positive rate of growth in real GDP per capita (the NAL+ countries) would be expected to have had average positive growth in agricultural incomes.

The data on real agricultural incomes show that the EIAL countries experienced greater improvements in the 1985–88 period than did the other groups. This finding supports the hypothesis that Bank-supported adjustment programs improved the situation of the rural population and restored rural agricultural growth to previous levels. Adjustment programs often promote an improvement in the rural terms of trade through the removal of government food procurement systems and food subsidies. The latter can lead to low producer prices because the subsidies become an increasing burden on the fiscal budget, and governments are then forced to keep producer prices low. Devaluations can also improve producer prices by increasing the domestic currency value of agricultural exports and food imports. However, doing so requires that price increases be passed on to producers, a condition that means that domestic food prices must be allowed to rise. Since agricultural products are often price-inelastic, increased prices will improve rural incomes. These improvements in rural purchasing power

will have beneficial distributional effects, since the great majority of the poor live in rural areas. However, these developments will also likely have adverse consequences for urban residents.

Urban Labor

Indicators for urban labor are examined next. Table 4–8 displays data on the share of the manufacturing wage bill in total value added in manufacturing. The numerator, "wages and salaries," includes direct wages and salaries, bonuses, housing and family allowances, and payments in kind. Supplements to wages such as social security, pension contributions and so on were not available.

Table 4–8 shows that the average and median share of the manufacturing wage in 31 countries for which there were data fell in the third period relative to the first two periods. In 13 EIAL countries, the share declined from 30.9 percent in the 1970s to 30.2 percent in 1981–84 to 28.0 percent in 1985–87. The EIAL median for 1970–80 was the same as the average, indicative of an even distribution about the mean. The median then fell at a faster rate than did the decline in the mean, and the distribution became skewed to the right, with more countries to the left of the mean. The average share of the manufacturing wage for 8 OAL countries and 10 NAL countries also decreased in 1985–87, but the medians were higher in the third period relative to the 1970s.

Tests to compare changes in the share of labor following adjustment gave the following results. When comparing the average for 1981–84 with 1985–87 (1970–80 to 1985–87), the straightforward before-and-after approach revealed a change of -2.1 (-2.8) percentage points in the share of in-

Table 4–8. Total Wage Bill as a Share of Total Value Added in Manufacturing
(percent)

Country	Number of countries	1970–80	1981–84	1985–87
EIAL	13			
Average		30.9	30.2	28.0
Median		31.0	26.7	25.8
OAL	8			
Average		32.2	32.8	31.1
Median		31.1	32.6	32.0
NAL	10			
Average		28.9	29.8	28.2
Media		26.7	29.6	28.0
All countries	31			
Average		30.6	30.8	28.9
Median		29.2	30.1	27.8

Source: United Nations Industrial Development Organization (various issues, a).

come going to labor. The control-group approach showed a change in the EIAL countries of -0.5 (-1.9) percentage points compared with the non-EIAL countries in 1981–84 to 1985–87 (1970–80 to 1985–87). However, these differences were not statistically significant. With controls for pre-program conditions and external conditions, the modified control-group approach yielded negative changes for manufacturing labor. Again, however, the results were not statistically significant.[17]

Tentatively, it appears that wage earners in manufacturing in the EIAL countries experienced larger declines than they did in the OAL and NAL country groups. Both the averages and the medians were lower by a larger amount between 1970–80 and 1985–87 in the EIAL group than in the other two groups. In fact, the OAL and NAL groups had higher medians in the third period than in the first period. In some EIAL countries, the fall in wages may have been necessary because they were unsustainably high. For example, high tariff protection for import-substituting manufacturing in the 1970s led to high manufacturing wages in some countries as unions claimed part of the rents from tariffs. Similarly, in oil-exporting countries, high oil prices in the 1970s allowed unsustainably high real wages that then had to fall in the 1980s for the countries to become competitive.

The time series for the share of the manufacturing wage bill in each country was tested next to see if there were significant deviations from trend growth during the loan years. This procedure can be used to separate out wage performance during the years of the adjustment programs from the longer term trends in the data.

Table 4–9 shows that in 4 of 13 EIAL countries and 3 of 7 OAL countries there was a significant decline from trend in the wage share of manufacturing value added during the loan period. As noted, this finding does not establish that the adjustment programs caused the fall in the share of wages. The fact that 9 of 13 EIAL countries did not experience a significant drop in the share of wages during the loan years shows that in most countries in this group the programs did not affect this variable.

Table 4–10 displays data on the growth of real manufacturing wages. The total wage bill was divided by the number of manufacturing employees and then divided by the CPI. According to table 4–10, in the 12 EIAL countries for which there were data the real manufacturing wage grew by 1.1 percent in the 1970s and 0.5 percent in 1981–84 and then fell by 1.2 percent in 1985–87. The average for the latter period was, however, affected by the large negative growth in the real manufacturing wages of Bolivia and Tanzania. The EIAL median moved somewhat differently: it increased from 0.6 percent in 1970–80 to 1.9 percent in 1981–84 and then fell to 0.9 percent in 1985–87. Thus, the EIAL median was higher in the latter period than it was in the 1970s.

In 10 OAL countries, the growth in real wages was positive in all three periods. The median fell in the crisis

Table 4–9. Significant Deviations in the Wage Bill Share of Manufacturing Value Added from Trend Growth during the Loan Years
(percent)

EIAL countries	
Bolivia	-12.5
Colombia	-20.8
Mexico	-31.9
Turkey	-20.7
OAL countries	
Uruguay	-32.2
Yugoslavia	-9.2
Zimbabwe	-14.9

Note: Countries with insignificant shifts
EIAL: Chile, Kenya, Korea, Mauritius, Pakistan, the Philippines, Senegal, Tanzania, Thailand
OAL: Argentina, Ecuador, Hungary, Panama.
Source: United Nations Industrial Development Organization (various issues, a) for the share of manufacturing wages; World Bank (1990b, annex table 5.5) for the loan years.

period but was partially restored in the 1985–87 period. In 10 NAL countries, the growth in real manufacturing wages decreased steadily: growth was 0.7 percent in the 1970 and 0.3 percent in 1981–84 and then -0.1 percent in 1985–87. Again, the average for 1985–87 was heavily affected by the outliers: Haiti had 13.5 percent annual growth and Nicaragua -28.7 percent. The NAL median moved very differently from the average: it increased steadily over the three periods, from 1.3 percent to 1.6 percent to 3.7 percent.

Data on government expenditures on wages and salaries as a share of total central government non-interest expenditures were available for 26 countries. Table 4–11 shows that in the EIAL countries the average wage share of non-interest

Table 4–10. Growth of Real Wages in Manufacturing
(percent)

Country	Number of countries	1970–80	1981–84	1985–87
EIAL	12			
Average		1.1	0.5	-1.2
Median		0.6	1.9	0.9
OAL	10			
Average		2.7	1.2	1.4
Median		1.9	0.8	1.4
NAL	10			
Average		0.7	0.3	-0.1
Median		1.3	1.6	3.7
All countries	32			
Average		1.5	0.6	0.0
Median		1.4	1.4	1.5

Source: Comision Económica para América Latina y el Caribe (CEPAL) for Latin America in 1980–88 and United Nations Industrial Development Organization (various issues, a) for all other data.

Table 4–11. Government Expenditures on Wage and Salaries as a Share of Total Expenditures Less Interest Payments
(percent)

Country	Number of countries	1970–80	1981–84	1985–87
EIAL	10			
Average		29.6	28.2	27.4
Median		30.5	27.0	26.0
OAL	6			
Average		34.7	28.1	30.0
Median		33.9	29.0	28.4
NAL	10			
Average		31.0	26.8	29.8
Median		34.0	25.4	27.7
All countries	26			
Average		31.3	27.7	28.9
Median		33.4	27.0	27.3

Source: International Monetary Fund (various issues).

expenditures declined steadily. The EIAL median followed a similar pattern. In the OAL and NAL countries, the share of wages fell in the early 1980s during the recession but then recovered somewhat in the 1985–87 period. Thus, part of the adjustment in the EIAL countries was a compression of the government wage bill throughout the 1980s through decreases in either wages or employment, the aim being to restore the fiscal accounts.

Data on real wages in construction are often used as a proxy for the wages of unskilled labor in urban areas. Wage indexes for construction are displayed in table 4–12 (data for all three time periods were available for only 15 countries.) Four EIAL countries—Chile, Kenya, Malawi and the Philippines—had lower real construction wages in 1985–87 than in 1981–84, and four EIAL countries—Costa Rica, Korea, Mauritius and Thailand—had higher ones in the latter period. When comparing 1985–87 with 1970–80, three of six EIAL countries had higher real construction wages in the 1985–87 period. Of the OAL countries, two had higher wages in the 1985–87 period relative to the 1970–80 period, and three had lower real wages. The same pattern applied in the five NAL countries. All three country groups had both increases and decreases in real construction wages, and this small sample suggests that adjustment lending was not related to the movements of real wages in construction.

The data on real construction wages were tested to see whether there were any significant deviations from trend growth during the loan years in any of the countries. Table 4–13 shows that 6 of 13 EIAL countries had significant deviations:[18] Bolivia and Thailand had positive shifts during the loan years, Ghana, Malawi, Turkey and Zambia had negative shifts. The declines in construction wages during the loan years were probably the result of fall-offs in invest-

ment, which were common in the EIAL countries. One OAL country, Sierra Leone, had a negative shift in the growth of construction wages. Twelve of 19 countries did not see a significant change in the growth of real construction wages during the loan years.

Table 4–14 contains data on the ratio of the food price index to the consumer price index. These data are relevant to poor urban consumers and rural net consumers of food. If the food price index increases faster than the general CPI, the poor are hurt more than the non-poor, given that food accounts for a larger part of their expenditures. Table 4–14 shows that in the EIAL countries the average ratio of food to consumer prices fell over the three time periods. The median also fell but only slightly. The OAL countries had a similar experience. The NAL+ countries experienced a slight increase in the early 1980s, followed by a decline in 1985–87, while in NAL- countries both the averages and medians rose in 1985–87. In general, in all the country groups except the

Table 4–12. Real Wage Index in Construction
(1980 =100)

Country	1970–80	1981–84	1985–87
EIAL			
Bolivia	99.5	53.2	n.a.
Chile [a]	n.a.	102.6	90.3
Costa Rica	83.6	83.1	110.5
Ghana	121.1	54.2	n.a.
Kenya	134.0	94.6	80.3
Korea	74.8	82.8	113.1
Malawi	117.1	74.4	59.7
Mauritius	91.5	98.9	102.4
Mexico	100.1	91.0	n.a.
Philippines [b]	n.a.	93.6	73.7
Thailand	n.a.	111.9	185.84
Turkey	149.9	100.8	n.a.
Zambia	94.2	86.8	n.a.
OAL			
Bangladesh	129.0	83.3	n.a.
Burundi	88.4	91.2	82.7
China	98.0	107.3	128.8
Honduras	89.4	201.7	n.a.
Hungary	100.7	101.3	104.8
Sierra Leone	114.4	72.4	31.6
Yugoslavia	99.9	68.7	78.1
Zimbabwe	95.1	106.7	n.a.
NAL			
Jordan	102.4	118.3	n.a.
Myanmar	109.7	108.9	96.2
Peru	100.5	86.2	84.1
Portugal	95.9	98.8	84.8
Sri Lanka	102.3	152.1	178.5
Trinidad and Tobago	84.3	121.7	113.1

n.a. Not available.
a. 1983 = 100.
b. 1983 = 100.

Source: International Labour Organisation (various issues [1980, 1988])

NAL- group, the average price of food rose at a slower pace than did the overall consumer price index. This trend suggests that the poor, for whom food accounts for a large share of their expenditures, did not suffer excessively from price increases relative to other income groups. On the other hand, the tolerance of the poor is much lower, and any negative impacts have a large effect on them.

To sum up, the urban labor indicators show that the share of manufacturing wages in GDP declined in 7 of 20 countries during the loan years and that both the averages and medians for the EIAL countries were lower in 1985–87 than in the 1970s. Government wage earners also suffered declines in their wages and/or employment in 1985–87 in the EIAL countries. However, these declines may have been necessary if the previous levels were not sustainable or competitive. The evidence for construction workers is mixed: in about half the countries real wages rose, and in 12 of 19 countries there were no significant deviations from trend growth during the loan years. Finally, food prices did not rise faster than the general consumer price index did in most country groups, an important point for the poor.

Social Indicators [19]

The second part of this chapter looks at trends in social indicators and compares the performance of countries that received Bank lending in support of adjustment programs relative to countries that did not. The indicators examined are per capita real private consumption, government expenditures on the social sectors, and social indicators such as infant and child mortality, immunization, nutrition and educational performance.

While many of the social indicators are expressed as country averages, they still provide information about the poor. The reason is that the non-poor usually have access to social services before the poor. If the percentage of non-poor in the population is less than the percentage of the population with access to social services, then some of the poor are being reached. At this point, most of the movement in the indicator will reflect changes in the welfare of the poor.

It is not clear a priori whether the poor will be hurt more or less by the adjustment policies than they will be without them. However, in general the reductions in expenditures associated with adjustment policies are likely to reduce the level of welfare. Therefore, as a first step the study investigated to what extent the reductions in expenditures were reflected in private consumption and government expenditures and whether the trends differed between adjustment and non-adjustment lending countries.

As a second step, the study took another look at the current evidence on trends in socioeconomic indicators such as infant mortality and nutrition in the developing world in the 1980s. These trends were compared with the 1970s to

Table 4–13. Significant Deviations from Trend Growth during the Loan Years for the Construction Wage
(percent)

EIAL countries	
Bolivia	30.5
Ghana	-37.0
Malawi	-15.6
Thailand	90.4
Turkey	-40.5
Zambia	-31.6
OAL countries	
Sierra Leone	-56.4

Note: Countries with insignificant shifts

EIAL: Chile, Costa Rica, Kenya, Korea, Mauritius, Mexico, Tanzania

OAL: Burundi, Guyana, Hungary, Yugoslavia, Zimbabwe.

Source: International Labour Organisation for the data on construction wages; World Bank (1990b, table annex 5.5) for the loan years.

assess whether reference to the eighties as "the lost decade of development" was justified. Finally, the study assessed whether, during the 1980s, the trends in social indicators differed significantly between adjustment lending countries and other countries.

This part of the chapter is organized as follows. The growth rates in per capita private consumption are presented first, followed by an analysis of government expenditures on welfare. Health-related indicators such as infant and child

Table 4–14. Ratio of the Food Price Index to the Consumer Price Index

Country classification	Number of countries	1970–80	1981–84	1985–87
EIAL	22			
Average		1.01	1.00	0.97
Median		1.01	0.99	0.99
OAL	15			
Average		1.00	1.00	0.99
Median		1.00	1.00	0.99
NAL+	10			
Average		1.00	1.01	0.98
Median		0.99	1.01	0.972
NAL-	10			
Average		0.99	.98	1.02
Media		0.99	.99	1.02
NAL	20			
Average		1.00	1.00	1.00
Median		0.99	1.00	1.00
All countries	57			
Average		1.00	1.00	0.99
Median		1.00	1.00	0.99

Source: International Labour Organisation (various issues) for the food price index and International Monetary Fund for the consumer price index.

50

mortality, immunization and nutrition are discussed next. Finally, primary school enrollment is discussed.

Growth Rates in Private Consumption

Private consumption is defined here as the market value of all goods and services purchased or received, including income in kind, by households and non-profit organizations. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings.

Table 4–15 presents the growth rates of real per capita private consumption, which were calculated using private consumption in constant local currency. The aggregations of growth rates are simple arithmetic averages across countries. The table indicates that in all developing countries, real per capita consumption grew by 2.1 percent in the 1970–80 period and declined by 0.4 percent in the 1981–84 period and showed no improvement in 1985–88. When the performance of countries grouped by their adjustment lending status is compared, it is notable that only the EIAL countries showed improvements over the two periods, 1981–84 and

Table 4–15. Annual Growth Rates of Real Per Capita Private Consumption
(percent)

Country classifi- cation[a,b]	Number of countries	1970–80 growth	1970–80 (+/–)[c]	1981–84 growth	1981–84 (+/–)[c]	1985–88 growth	1985–88 (+/–)[c]
EIAL	24	1.5	(17/7)	-1.1	(9:15)	1.4	(18/6)
LIC	11	0.1	(6/5)	-2.6	(2:9)	1.0	(7/4)
MIC	13	2.7	(11/2)	0.2	(7:6)	1.8	(11/2)
OAL	23	1.6	(19/4)	0.2	(11:12)	-0.1	(12/11)
LIC	12	0.7	(9/3)	-0.1	(6:6)	0.5	(8/4)
MIC	11	2.6	(10/1)	0.5	(5:6)	-0.9	(4/7)
NAL+	12	3.5	(12/3)	1.4	(8:7)	1.1	(8/7)
LIC	4	2.8	(3/1)	3.3	(4:0)	1.5	(3/1)
MIC	8	3.8	(9/2)	0.4	(4:7)	0.9	(5/6)
NAL-	15	2.8	(9/3)	-1.7	(3:9)	-2.9	(3/9)
LIC	5	0.4	(2/3)	-1.4	(1:4)	-1.0	(2/3)
MIC	10	4.0	(7/0)	-1.9	(2:5)	-3.9	(1/6)
All developing	74	2.1	(57/17)	-0.4	(31:43)	0.0	(41/33)

a. Data for Chad, Gabon, Gambia, Guinea, Lesotho, Mozambique, Nepal, Oman, Poland, Sierra Leone, South Africa, Tanzania, Uganda and Yemen People's Democratic Republic are missing, so that 74 countries are left.
b. EIAL countries are early-intensive adjustment lending countries and OAL countries are other adjustment lending countries. The non-adjustment lending (NAL) countries are divided into those whose per capita real GDP increased from 1981 to 1988 (NAL+) and those where it decreased (NAL-). The low-income countries (LIC) are those that received IDA loans in FY89, the middle-income countries (MIC) those that did not.
c. The ratio is the number of countries with positive growth rates to the number of countries with negative rates.
Source: World Bank.

1985–88, that were associated with adjustment lending. Furthermore, this group had the highest rate of growth in 1985–88 of the four adjustment lending groups.

In the EIAL countries, per capita real private consumption appears to have been protected, relative to other countries, during the 1985–88 period. The relative increase in consumption was made possible by a relative decrease in investment.[20] The growth in per capita real consumption was 2.5 percentage points higher in 1985–88 than in 1981–84, having almost recovered to the levels of 1970–80. At 1.4 percent, the average rate of growth of per capita consumption in the EIAL countries was higher than the average rates for the OAL, NAL+ and NAL- groups in 1985–88. The low-income EIAL countries increased their rate of growth by 3.6 percentage points, whereas the OAL countries had a slight decline in their average rate of growth of consumption from 1981–84 to 1985–88, with decreases in the growth in per capita consumption in the middle-income OAL countries and increases in the low-income OAL countries. The NAL+ countries continued the positive growth of their per capita consumption throughout the 1980s, while the NAL- countries had significant declines. It is also worth noting that this relatively optimistic picture for the EIAL countries in 1985–88 was not the result of just a few very good performers: 18 of the EIAL countries had positive growth in per capita consumption, while only 6 countries experienced negative growth. This pattern contrasts with the distribution in the early 1980s, when 9 EIAL countries had positive growth and 15 had negative growth. The OAL and NAL groups saw little or no change in the distribution of countries with positive and negative growth in consumption in the two periods in the 1980s.

When the EIAL countries are compared with all other countries, they show higher growth in consumption in the 1985–88 period as compared with other periods. This result also holds after controlling for pre-program conditions and the evolution of such external economic conditions as changes in a country's terms of trade, international interest rates and net foreign financing.[21] When these factors are controlled for, the adjustment programs raised the average annual rate of growth of per capita real consumption by 3 percentage points in the EIAL countries relative to the OAL and NAL countries when comparing 1985–88 with 1970–80.

There are important differences in performance among the EIAL countries. When comparing 1985–88 with 1970–80, per capita consumption grew more rapidly in Zambia, Madagascar, Korea, Tanzania and Chile than was predicted by their pre-program conditions, the size of their external shocks and their participation in adjustment programs. The largest underperformers in the EIAL group were Côte d'Ivoire, Madagascar, Mauritania, Nigeria and Mexico—all of whose rates of growth in per capita consumption were below the predicted values.

The rest of this chapter shows the extent to which the picture sketched by this aggregate welfare measure—per capita consumption—is reflected in other, more direct measures of living conditions, such as infant and child mortality, nutritional well-being and access to education. Before turning to that exercise, however, it is useful to look at how government expenditures on welfare programs were affected during the adjustment period.

Social Welfare Expenditures

In most developing countries the public sector plays the dominant role in financing social welfare programs. In the seventies the public sector grew rapidly in almost all countries, but in the eighties many developing countries engaged in programs aimed at reducing fiscal imbalances that required a mixture of revenue expansion and expenditure reduction. Although stabilization and adjustment programs are not usually explicit in specifying the focus for cuts in expenditures, it is believed that the social sectors are often a prime target. There is growing concern that if this assumption is true, adjustment programs could have adverse effects on the most vulnerable population groups.

Data were available on the expenditures of the consolidated central government. However, caution is needed in interpreting changes in the shares of the central government budget as indicators of the level of social services delivered in total and to the poor for two reasons. First, the improved policies associated with structural adjustment programs may call for better targeting and cost-recovery measures that allow budget-cutting along with sustained or increased provision of social services, especially for the poor. This policy approach is possible because typically the middle- and upper-income classes have been the most likely to use the bulk of the social services and transfers: in many cases, services such as hospital care and university education account for 80 percent or more of government social outlays. These types of services benefit just 20-30 percent of the people, most of them urban. Thus, budget cuts and improved access by the poor are possible simultaneously.[22] Second, there may be reallocations of social expenditures between central and regional governments that the data, which deal only with changes in central government expenditures, do not pick up.

Two sets of questions are addressed here. The first is whether government expenditures as a proportion of GDP fell in the 1980s. If so, was the fall greater in adjustment than in non-adjustment lending countries? The second is whether there is substantial variation in the proportion of total government expenditures allocated to health, education and other welfare programs. Did these ratios decrease or increase between the periods 1981–84 and 1985–87? If so, were the changes different in adjustment and non-adjustment lending countries?

The data on government expenditures, which are obtained from the IMF's *Government Finance Statistics* (International Monetary Fund, various issues), contain, as noted, only the central government's expenditures. The data were classified in three categories: education services; health services; and other welfare. The category "other welfare" includes expenditures on social security and welfare affairs and services, housing and community affairs and services, and recreational, cultural and religious affairs and services.

Table 4–16 presents total non-interest government expenditures as a proportion of GDP and expenditures on education, health and other welfare as a proportion of total government expenditures less interest payments for the three periods 1970–80, 1981–84 and 1985–87. Data were available for only 10 EIAL countries, 5 OAL countries and 5 NAL countries.[23] Central government non-interest expenditures increased slightly as a proportion of GDP from 1970–80 to 1981–84 but then decreased by 1.3 percentage points in 1985–87 on average for the 10 EIAL countries. On average, from 1981–84 to 1985–87 these expenditures declined in the OAL and NAL countries as well. Thus, most countries compressed their expenditures relative to GDP as required to restore their macro balance.

The share of total public spending on education and health in total government expenditures, less interest payments, in the EIAL countries increased slightly from 22.3 percent in 1970–80 to 24.4 percent in 1981–84 and then decreased to 22.4 percent in 1985–87. Most of the decline in the mid-1980s was the result of reductions in the share of education: 6 of 10 EIAL countries experienced declining shares for education, and 4 of 10 EIAL countries showed the same pattern for health shares. The average share of expenditures on other welfare programs increased from 16.8 percent to 17.1 percent in the EIAL countries during the 1980s.[24]

The OAL countries also had a decreasing ratio of non-interest public expenditures to GDP in the 1980s. However, the shares for their social sectors increased on average. The NAL countries upped the share of their expenditures on health and education in the 1980s but decreased it for other welfare.

There are some interesting differences across the countries. Although Mexico had a significant decline in its share of non-interest expenditures in GDP, it *increased* its share of spending on both education and health in the 1980s. Morocco had a similar experience. Togo went in the opposite direction: it increased its share of non-interest expenditures and significantly decreased its shares for education and health.

Chile demonstrates that the data on shares of expenditures need to be treated with caution. While the shares for education and health declined in the 1980s, improved targeting and reallocations within education and health increased the level of social services provided to the poor. Costa Rica provides another example. Expenditures for both health and

Table 4–16. Government Expenditure and Welfare Expenditure Shares
(percent)

Country	(G-int)ᵈ/GDP			Education/(G-int)ᵃ			Health/(G-int)ᵃ			Otherᵇ/(G-int)ᵃ		
	1970–80	1981–84	1985–87	1970–80	1981–84	1985–87	1970–80	1981–84	1985–87	1970–80	1981–84	1985–87
EIALᶜ												
Chile	31.4	31.1	28.1	15.0	14.5	13.7	7.8	6.5	6.4	34.4	46.4	46.7
Costa Rica	19.6	19.6	21.9	29.5	22.9	19.2	13.4	29.9	23.2	25.2	19.7	26.7
Korea	15.2	16.0	14.9	16.8	20.6	19.7	1.3	1.5	1.9	7.6	8.8	8.7
Mauritius	22.0	22.5	18.7	15.7	19.1	16.9	9.0	9.4	9.6	26.5	27.4	24.8
Mexico	12.6	13.1	13.0	19.8	18.1	19.3	4.5	2.0	2.6	25.6	19.6	20.0
Morocco	28.9	31.0	24.8	16.9	19.8	20.1	4.2	3.3	3.4	8.2	8.2	8.7
Pakistan	15.4	16.2	18.1	2.3	3.3	3.4	1.6	1.4	1.1	6.6	11.9	13.3
Thailand	14.7	17.6	16.9	22.3	22.5	23.0	4.4	5.5	7.0	7.7	5.8	6.2
Togo	37.9	29.1	34.5	10.7	21.0	13.5	5.1	6.4	4.0	15.2	14.6	11.8
Turkey	23.0	22.7	19.9	19.6	14.2	13.1	3.1	1.9	2.4	4.9	5.4	4.3
Averageᵈ	22.1	22.4	21.1	16.9	17.6	16.2	5.4	6.8	6.2	16.2	16.8	17.1
OALᶜ												
Hungary	n.a.	53.0	54.8	n.a.	1.7	1.9	n.a	3.1	3.7	n.a.	26.2	27.9
Indonesia	18.2	20.6	20.0	8.7	9.9	10.8	2.2	2.6	2.3	2.4	2.4	2.8
Panama	28.3	28.6	26.1	18.7	16.3	19.6	15.5	18.2	19.5	14.8	18.0	22.1
Uruguay	22.5	24.6	20.6	10.7	7.3	7.4	4.4	3.7	4.8	48.3	54.7	54.8
Zimbabwe	29.1	31.1	33.0	14.5	23.3	23.7	6.4	7.2	7.1	8.1	9.2	7.7
Averageᵈ	n.a.	31.6	30.9	n.a	11.7	12.7	n.a.	6.9	7.5	n.a.	22.1	23.0
NALᶜ												
India	10.9	11.9	14.3	2.5	2.2	2.6	2.2	2.6	2.4	3.9	5.1	6.0
Oman	51.9	44.9	47.6	3.5	7.2	10.1	3.4	3.5	4.9	3.0	3.5	3.8
Sri Lanka	26.5	26.0	27.0	11.9	9.4	9.7	6.6	5.0	5.2	26.0	16.3	13.0
Venezuela	18.2	20.9	18.5	17.3	19.4	22.1	10.2	8.9	10.7	10.5	14.5	12.9
Yemen Arab Rep.	22.6	37.9	28.9	8.2	16.3	19.9	3.2	4.3	4.2	2.3	2.0	2.2
Averageᵈ	26.0	28.3	27.3	8.7	10.9	12.9	5.1	4.9	5.5	9.1	8.3	7.6

n.a. Not available.

a. (G-int) is consolidated central government total expenditures less total interest payments.

b. "Other" expenditures are for social security and welfare, housing and community affairs, and recreational, cultural and religious affairs.

c. Countries were selected if they had complete data for 1981–86.

d. Averages were calculated if there were no missing data.

Source: International Monetary Fund (various issues).

education declined between the periods 1981–84 and 1985–87, whereas other welfare expenditures increased from 19.7 percent to 26.7 percent. A large portion of this increase came about through increases in social security payments. This substantial reallocation of public welfare resources will have implications that should be explored further.

A recent study by the Pan American Health Organization (PAHO) (1989) that looked at the effect of the economic crisis of the eighties on public health expenditures also revealed the heterogeneity in health expenditure patterns in five Latin American and Caribbean countries (Mexico, Honduras, Ecuador, Brazil and Uruguay). The study concluded that there definitely was a crisis of resources for health at the central government level. In the typical case, the pre-crisis expenditure per capita still had not been regained in 1986.

However, this does not imply that the health sector suffered discrimination on account of the crisis. The study found that the sector neither systematically suffered a reduction of its relative share of the reduced total product nor was given less priority by the national governments.

A recent paper by the IMF examined whether the fiscal adjustment required by most countries since the late 1970s led to a significant shift in expenditure priorities. The methodology was to calculate an "expected" expenditure share (of GDP) for each country and to compare this share with the actual one. ("Expected" shares control for demand factors such as changes in the population profile, technology and budget constraints.)

In the EIAL countries, the average actual shares of expenditures for education in 1984–86 were 7-10 percent *higher*

than what would have been expected, and actual health expenditures were 11-16 percent higher on average than what would have been expected (Heller and Diamond 1989). A recent study (Sahn 1989) on the implications of the effect of macroeconomic adjustment on poverty in Sub-Saharan Africa found no conclusive evidence to suggest that countries reduce government expenditures, either in real terms or as a percentage of GDP, as a consequence of receiving adjustment loans. In those countries where there had been a compression in government spending in the 1980s, it generally pre-dated the beginning of the adjustment process.

The data here did not show an overall reduction in government expenditures as a percentage of GDP (not shown in the table), but when interest payments are deducted from the expenditures, the resulting non-interest expenditures showed a decline as a percentage of GDP in most countries and in all country groups in the 1980s. The shares of expenditures on health and education increased in the NAL countries. However, most EIAL countries experienced a fall in the shares of expenditures on education and health.

These declines are cause for concern. Greater emphasis needs to be given to the protection of the social sectors during adjustment to avoid further deterioration. Because providing health and education services is an investment in human capital, greater emphasis is fully compatible with adjustment policies that aim at long-term sustainable growth.

Infant and Child Mortality, and Immunization

Life expectancy is perhaps the single most comprehensive indicator of a population's health status. It is the result of a large number of inputs that affect longevity in a complex and, as yet, poorly understood way. Many of these inputs (for example, adult literacy) are by their very nature resilient against fluctuations in living conditions in the short run. Other inputs may, however, be more dependent on current economic conditions (for example, funds for immunization programs). It is plausible that infant and child mortality are more dependent on such inputs than adult mortality is, so that the former indexes may be more sensitive to economic fluctuations than the latter.

The aggregate values of the infant mortality rates (number of deaths before the age of 12 months per 1,000 live births) show a monotonic decline during the 1977-87 period (table 4-17). In the EIAL country group, the rate of decline from 1982 to 1987 was slower than the decline from 1977 to 1982. This result, however, is attributable to one country: Chile had a 13 percent drop in its infant mortality rate in 1982-87, after a 50 percent drop in 1977-82. When Chile is excluded, the average decline in the EIAL countries was higher in the 1980s than in the late 1970s.

Some demographers prefer to use the child mortality rate (the number of children per 1,000 live births who die between the ages of 0 and 5 years) rather than the infant

Table 4-17. Infant Mortality [a]
(percentage decline)

Country classification [b]	Number of countries	1977–82	1982–87
EIAL	23	-13.1	-11.6
LIC	11	-8.6	-8.7
MIC	12	-17.3	-14.2
OAL	27	-8.9	-9.7
LIC	17	-6.0	-7.8
MIC	10	-14.0	-12.9
NAL+	12	-12.8	-13.1
LIC	5	-12.4	-11.7
MIC	7	-13.1	-14.2
NAL-	17	-10.2	-11.5
LIC	6	-5.8	-7.2
MIC	11	-12.6	-13.9
All developing	79	-11.0	-11.1

Note: The data for China, Costa Rica, Ghana, Greece, Hungary, Mozambique, Poland, Portugal and Yugoslavia are missing.
a. The infant mortality rate is the number of deaths before the age of 12 months per 1,000 live births.
b. EIAL countries are early-intensive adjustment lending countries and OAL countries are other adjustment lending countries. The non-adjustment lending (NAL) countries are divided into those whose per capita real GDP increased from 1981 to 1988 (NAL+) and those where it decreased (NAL-). The low-income countries (LIC) are those that received IDA loans in FY89, the middle-income countries (MIC) those that did not.
Source: World Bank database.

mortality rate as a measure of a country's living conditions. The infant mortality rate reflects the differences across countries in weaning practices (longer/shorter than 12 months), which put newborns at risk at different times in their life. Thus, the child mortality rate may be more robust.

Hill and Pebley (1988) took a careful look at the UN child mortality statistics and eliminated imputations and data of dubious quality. The data were grouped into the various country categories (EIAL, OAL and NAL), including only those countries for which at least the change in child mortality from 1970-75 to 1975-80 and 1975-80 to 1980-85 could be calculated. That procedure yielded just 28 countries (table 4-18). Of the 10 EIAL countries in this group, 4 (Brazil, Chile, Colombia and Senegal) showed a faster pace of improvement in the eighties than in the seventies. The Philippines, Costa Rica, Mexico, Thailand and Turkey continued to show a reduction in child mortality in the eighties, but the pace of progress was lower than that in the seventies. Of these five, two had mortality rates under 60 per 1,000 births in 1980-85, a level at which further large declines in child mortality may become more difficult to attain. Ghana is the only country that showed an increase in child mortality, but it is unclear whether the change occurred before or after the country started its adjustment program. Of the 10 NAL countries in the sample, 4 improved more

Table 4–18. Child Mortality [a]
(percentage decline)

Country	1960–65 to 1965–70	1965–70 to 1970–75	1970–75 to 1975–80	1975–80 to 1980–85	1980–85 level
EIAL					
Brazil	8.6	10.1	14.4	19.6	86
Chile	17.6	29.5	34.2	46.2	28
Colombia	11.9	25.2	28.1	34.4	42
Costa Rica	21.4	27.3	45.3	31.4	24
Ghana	10.1	11.2	13.8	-6.7	160
Mexico	11.0	11.5	13.0	11.5	77
Philippines	10.9	11.4	11.9	6.7	83
Senegal	0.0	2.5	12.0	13.2	210
Thailand	13.2	22.9	23.1	21.4	55
Turkey	13.8	10.7	13.6	11.3	141
OAL					
Argentina	5.6	14.7	17.2	12.5	42
Bangladesh	n.a.	0.0	3.1	2.7	215
Ecuador	10.9	12.8	14.7	22.4	90
Indonesia	10.7	12.9	16.6	16.4	122
Mali	n.a.	n.a.	7.1	9.9	272
Panama	15.5	17.1	30.9	21.3	37
Uganda	9.4	6.8	5.0	-8.8	185
Uruguay	-1.9	3.7	5.8	30.6	34
NAL					
Botswana	6.1	14.2	21.1	33.3	70
Dominican Republic	n.a.	n.a.	25.8	10.2	88
Egypt	n.a.	14.3	18.3	15.3	166
Guatemala	n.a.	16.1	14.2	15.1	118
Haiti	n.a.	n.a.	10.8	8.7	189
Jordan	27.3	15.6	17.4	19.7	61
Liberia	5.1	1.4	11.6	9.5	220
Malaysia	20.9	13.9	25.8	10.9	41
Peru	11.0	18.0	7.5	23.8	112
Trinidad and Tobago	5.7	26.0	13.5	12.5	28

n.a. Not available.

a. The child mortality rate is that number of deaths between the ages of 0 and 5 years per 1,000 live births.

Source: Hill and Pebley (1988).

rapidly in the 1980s, while 6 improved more rapidly in the 1970s than in the 1980s.

Generalizations on the basis of this small sample are difficult to make. The continued progress during the eighties is perhaps the most striking finding. The increased speed of progress in 11 out of the 28 countries is also noteworthy. The apparent lack of a relationship between adjustment policies and trends in child mortality is another significant finding: both EIAL and NAL countries had increases and decreases in the pace of improvement in the 1980s.

Perhaps the most important observations relate to individual countries. For instance, progress seems to have slowed in Costa Rica, but child mortality there was already very low (24/1,000). The same cannot be said for Bangladesh and Uganda, where progress, already slow, slowed even more,

although improvement was badly needed. In general, progress was slowest in countries that had high initial mortality levels.

Finally, the newest, and probably the most reliable, data in this area come from the Institute for Development's Demographic and Health Surveys (DHS).[25] Table 4–19 shows infant mortality rates as calculated from the DHS for selected countries. Two observations stand out. First, the levels were generally much lower than those published by the World Bank in its *World Development Reports* (WDR), the implication being that progress may actually have been faster than that indicated by the WDR data. Second, in all the countries listed in the table, the decline in infant mortality appears to have been very large and to have continued during the eighties.

If living conditions in some developing countries decreased during the 1980s to the point that the life of a newborn was being threatened, the data do not reflect that fact. There also does not seem to be a link between progress against child mortality, or lack thereof, and the adjustment lending country categories. The apparent lack of a relationship between infant and child mortality and economic conditions is not a new result. It is consistent with the historical evidence on pre-industrialized England. The recent experience of improving mortality indicators during Chile's severe recession in the seventies is another example.

Nevertheless, there is still reason for concern. The excessive mortality of newborns, as reflected in infant mortality rates of well above 100 in most low-income countries, is appalling given the availability of technologies that are both affordable and easy to implement (for example, immunization and oral rehydration). Indeed, it is the steady progress in the use of these techniques that lies behind the observed achievements.

Table 4–20 shows that all country groups increased their immunization coverage in the eighties for measles and polio but that some countries in every grouping saw their progress eroded (World Health Organization 1989b). On average, immunization coverage for measles and polio increased between 1981–84 and 1985–88 in the 18 EIAL countries for which there were data. With wide variations around the mean, coverage for measles declined in four EIAL countries, for polio in six countries. The declines in coverage were similar in the NAL countries and less common among the OAL countries. The general picture shows immunization increasing almost everywhere, probably accounting for much of the continued decline in infant and child mortality. However, more information is needed to get a full picture of what happened to the quantity and quality of health services delivered to people in adjusting countries.

These data on infant and child mortality and immunization show that the general positive correlation between long-run economic development (as measured by long-run growth trends in per capita GNP) and social progress (as indicated

Table 4–19. Comparison of Infant Mortality Rates by Demographic and Health Surveys (DHS), World Bank (WB) and United Nations (UN)

Country	1971–75 DHS[a]	1971–75 WB[b]	1971–75 UN[c]	1976–80 DHS	1976–80 UN	1981–86 DHS	1981–86 WB[d]	1981–86 UN
Burundi	100	132	135	103	130	75	115	124
Liberia	192	112	155	164	143	144	89	132
Mali	170	196	203	156	191	108	133	180
Senegal	120	157	162	97	154	86	124	142
Sri Lanka	40	37	56	39	48	25	29	39
Thailand	55	60	65	41	56	35	51	48
Morocco	104	115	122	92	110	73	93	97
Dominican Republic	80	88	94	75	84	68	51	75
Ecuador	97	87	95	72	82	58	50	70
Guatemala	92	87	95	86	82	73	66	70
Trinidad and Tobago	47	28	30	37	26	26	29	24

a. For DHS, 1971–75 sometimes covers 1972–76 or 1972–77.
b. For the World Bank, 1971–75 refers to 1975.
c. For the United Nations, 1976–80 is 1975–80 and 1981–86 is 1980–85.
d. For the World Bank, 1981–86 refers to any year between 1981 and 1986.
Source: van der Gaag, Makonnen and Englebert (1991).

by a reduction in child mortality and increase in immunization) is not interrupted by temporary recessions. Short of major disasters such as famines and wars, the mortality can probably only be affected by the long-run trends in economic development. The reason is the large time lags in the underlying chain of causal events. Furthermore, the increased availability of affordable, low-technology, life-saving interventions permits increased progress even in times of recession.

The next two sections focus on two other aspects of living conditions that are more responsive to economic fluc-

tuations: nutrition and education. The trends to be discussed are nutrition (caloric intake as a ratio of caloric requirement) and protein intake, followed by primary school enrollment and student/teacher ratios.

Nutrition

In its Third World Food Survey, the FAO defined undernutrition as inadequacy of diet, that is, a calorie intake that, if continued over a long period, would result in either a loss of normal body weight or a reduction in physical activity or

Table 4–20. Immunization of Children under Age One
(percent)

Country classification[a]	Polio Number of countries	Polio Avg. for 1981–84	Polio Avg. for 1985–88	Polio Difference	Measles Number of countries	Measles Avg. for 1981–84	Measles Avg. for 1985–88	Measles Difference
EIAL	18	54	63	9	19	38	55	16
LIC	6	27	39	12	7	30	43	8
MIC	12	68	76	8	12	42	63	20
OAL	18	29	46	16	20	37	49	11
LIC	11	17	35	18	11	25	34	8
MIC	7	49	63	15	9	51	66	15
NAL+	10	42	50	8	9	27	41	13
LIC	4	20	35	15	3	3	25	17
MIC	6	56	60	4	6	39	49	10
NAL-	14	40	49	9	15	35	42	12
LIC	5	32	29	-3	6	45	34	-2
MIC	9	45	60	15	9	27	47	20
All developing	60	41	53	11	63	35	48	13

a. EIAL countries are early-intensive adjustment lending countries and OAL countries are other adjustment lending countries. The non-adjustment lending (NAL) countries are divided into those whose per capita real GDP increased from 1981 to 1988 (NAL+) and those where it decreased (NAL-). The low-income countries (LIC) are those that received IDA loans in FY89, the middle-income countries (MIC) those that did not.
Source: World Health Organization (1989a).

both. Malnutrition, a broader term, is defined as a deficiency in one or more specific essential nutrients.

A common method for determining undernutrition at the aggregate level is to compare average per capita calorie intake with the per capita caloric requirement.[26] For this purpose, the nutrition index is calculated as the actual average per capita calorie intake relative to the required intake; a negative number indicates a calorie intake below the required level and therefore the presence of undernutrition. Average per capita calorie intake is calculated by dividing the calorie equivalent of the food supplies in an economy by the population. Food supplies comprise domestic production, imports less exports, and changes in stocks; they exclude animal feed, seeds for use in agriculture, and food lost in processing and distribution. The daily per capita calorie requirement refers to the calories needed to sustain a healthy person at normal levels of activity, taking into account age and gender, average body weight and environmental temperatures.

The values of the nutrition index for the period 1980–86 are presented in table 4–21. When interpreting these data, it is important to bear the following points in mind. First, even if the average per capita calorie intake of a country is exactly equal to its per capita requirement, some of the population can still suffer from undernutrition because of a maldistribution of food supplies. The United Nations Food Conference in Rome in 1974 concluded that food energy supplies in developing regions should be at least 10 percent above the aggregate requirements to allow for maldistribution. This figure varies from country to country depending on the

degree of the inequity in food distribution. For instance, Indian data suggest that the average energy supply for rural areas should be about 20.6 percent above the average energy requirement, whereas the corresponding figure for urban areas should be 11 percent to allow for the maldistribution of food supplies.

Second, the procedure used assumes that the distribution of food supplies did not change during the recessionary period. However, this distribution is likely to become worse during periods of food shortages, and the actual decrease in the degree of nutrition will be greater than is shown by the magnitude of the nutrition index. In such a situation of declining food availability, the poor are generally the first to lose their entitlement to food.

For most developed countries, the nutrition index varies between 15 and 40. If the index lies within this range, it may be asserted that undernutrition is negligible. In a country where the index is lower than -15, the population can be regarded as suffering acute undernutrition. In the EIAL group, the nutrition index worsened between 1981 and 1983 and then improved between 1983 and 1986 and ended up better than in 1980. The decline in the early 1980s occurred mainly in the low-income EIAL countries; the middle-income EIAL ones saw a fairly consistent improvement in nutrition from 1980 to 1986 (except for 1983). The OAL countries exhibited a similar pattern, with decreases in nutrition from 1981 to 1984 and improvement thereafter. The NAL+ countries significantly raised their nutritional status during the 1980s. Although the NAL- countries also improved their nutritional status (except for 1983), this was attributable to the middle-

Table 4–21. Nutrition [a,b]

(percent)

Country classification [c]	Number of countries	1980	1981	1982	1983	1984	1985	1986
EIAL	24	5.62	5.84	5.52	4.33	5.38	6.38	6.61
LIC	11	4.51	-4.43	-5.36	-7.35	-6.07	-4.82	-5.20
WIC	13	14.18	14.52	14.73	14.22	15.07	15.85	16.60
OAL	30	-1.98	-0.78	-1.17	-1.63	-2.80	-0.41	0.80
LIC	18	-9.75	-8.12	-8.91	-9.70	-11.64	-8.05	-6.62
MIC	12	9.68	10.23	10.44	10.49	10.47	11.08	11.93
NAL+	14	7.73	8.32	8.84	10.07	11.17	12.00	12.30
LIC	5	-0.97	-0.26	0.68	3.69	3.98	5.10	5.39
MIC	9	12.56	13.09	13.37	13.61	15.16	15.84	16.14
NAL-	18	0.06	0.53	0.99	0.56	1.15	1.36	1.73
LIC	7	-12.57	-12.43	-12.54	-14.71	-14.26	-14.62	-14.33
MIC	11	8.09	8.77	9.59	10.28	10.95	11.53	11.96
All developing	86	2.15	2.82	2.78	2.40	2.58	3.88	4.49

a. Nutrition (N) is calculated as $N = ((U-R)/R) \times 100$ where U is the average per capita calorie intake in a country and R is its average requirement.

b. The data for Oman and Zambia are missing.

c. EIAL countries are early-intensive adjustment lending countries and OAL countries are other adjustment lending countries. The non-adjustment lending (NAL) countries are divided into those whose per capita real GDP increased from 1981 to 1988 (NAL+) and those where it decreased (NAL-). The low-income countries (LIC) are those that received IDA loans in FY89, the middle-income countries (MIC) those that did not.

Source: Food and Agriculture Organization.

income countries: the low-income NAL- countries experienced a decline in nutrition from 1981 to 1985.

A review of changes in nutrition status in Africa shows no clear relationship between those changes and the country's status as EIAL or NAL. In 8 of 12 EIAL countries in Africa, the nutrition index worsened between 1980 and 1983–84. In 10 of 12, it improved between 1983–84 and 1986. Even after an improvement, however, seven of the EIAL African countries still had lower levels of nutrition in 1986 than in 1980. The 10 NAL countries in Africa (excluding South Africa) look very much the same, with 6 showing deterioration between 1980 and 1983–84 and 5 showing improvements after 1983–84. In 5 of 10 African NAL countries, the situation in 1986 was worse than in 1980. Only a few countries in Africa managed steadily to improve their nutritional status during 1980–86, and they were in both the EIAL and NAL groups.

Fortunately, the food situation in other parts of the world was not as grim as that in Africa. Although nutrition was poor in many other countries, particularly in South Asia, there was a general trend toward improvement. India and China, the two largest countries in Asia, significantly reduced the extent of their undernutrition during the 1980s. Bangladesh, however, still had a high degree of undernutrition. With the exception of the Yemen Peoples Democratic Republic and the Yemen Arab Republic, all the countries in the Bank's Europe, Middle East and North Africa Region had adequate levels of nutrition. In Latin America, the nutrition index was negative for 6 out of 22 countries. Among those, Haiti, Bolivia and Ecuador had the most severe undernutrition, despite a slight improvement toward the end of the period. Changes in the degree of nutrition were generally small in Latin America compared with other regions.[27]

It could be argued that nutrition as defined here is not an adequate index of the nutritional status of the population. Direct anthropometric measures such as height or weight for height would be preferable. Unfortunately, such data were only available for a limited number of countries. The United Nations recently published an update on the nutrition situation that contained information on 33 countries (United Nations 1989). This report was a follow-up to the First Report on the World Nutrition Situation, which summarized its findings as follows: "In most parts of the world, nutrition has improved over the last 25 years...However, Sub-Saharan Africa has suffered long-term declining food availability and increased malnutrition...." (United Nations 1987). The update report concluded that, by and large, the long-term trend in child nutrition was one of gradual improvement. However, the report also showed that child nutrition can be very sensitive to the disruptive effects of crises (such as severe economic recession, political upheaval or drought).

The update report provided data on the prevalence of malnutrition for a few countries in Africa up to 1987. These data revealed no systematic relationship between adjustment lending and the prevalence of malnutrition in Africa. In Africa there were two broad trends: for one group of countries—Benin (NAL), Burkina Faso (OAL), Ghana (EIAL) and Togo (EIAL)—there was a rising incidence of malnutrition to 1983–84, followed by a recovery to the pre-crisis levels by 1986, and then, for Benin and Ghana, some worsening in 1987; and for the second group of countries—Lesotho (NAL), Madagascar (EIAL) and Niger (OAL)—there was a trend of rising malnutrition. Given that each of those broad trends was applicable to countries in every lending group, it seems there was no clear relationship between malnutrition and adjustment lending. (The data for Latin America and Asia were more infrequent and were not comparable across countries.)

What is perhaps most surprising is not the lack of evidence that adjustment programs have contributed to malnutrition, but the failure of adjustment lending countries to perform better in this area than the non-adjustment lending countries did, many of which suffered equally severe recessions, drought and other external shocks. Given that some severely constrained countries managed to improve their nutritional status during the eighties, it appears that much more can be done to improve nutritional status in adjustment lending as well as non-adjustment lending countries.

School Enrollment

This section looks at changes in the educational status of the population as measured by primary school enrollment ratios. Table 4–22 presents the average gross enrollment ratios for various country classifications according to the adjustment loans received.

There were wide variations in the enrollment ratios across developing countries. Those with extremely low ratios were Burkina Faso, Ethiopia, Guinea, Mali, Niger and Somalia, where only between 20 percent and 30 percent of the children were enrolled in primary schools. Among the EIAL countries, the average gross primary school enrollment rates declined from 94.2 percent in 1980 to 90.1 percent in 1985, in contrast to a rising average for all the other groups (data were not available for the interim years). These declines in enrollment reflect the effects of both the crisis and the early phases of the adjustment programs. However, within the EIAL group country differences were significant. For example, in Pakistan the enrollment ratio declined from 1975 to 1980 and then improved from 1980 to 1985. Tanzania, a country that during the 1960s and 1970s had been known for its outstanding educational performance during the 1960s and 1970s, had declining gross enrollment ratios (from 92.8 percent in 1980 to 72.2 percent in 1985). Zimbabwe made the most progress, boosting its enrollment ratio from 1980 to 1985. This achievement can be attributed to a large increase in government expenditures on education during the same period.

Table 4–22. Gross Primary Enrollment Ratio

(percent)

Country classification [a]	Number of countries	1975	1980	1985
EIAL	25	83.2	94.2	90.1
LIC	12	68.1	84.5	78.5
MIC	13	97.1	103.1	100.8
OAL	26	69.9	73.5	80.1
LIC	15	49.7	51.9	55.3
MIC	11	97.4	102.8	114.0
NAL+	15	81.7	87.8	97.9
LIC	5	75.5	85.1	99.6
MIC	10	84.8	89.2	97.0
NAL-	18	79.1	84.5	85.6
LIC	7	56.1	64.0	64.0
MIC	11	93.7	97.5	99.3
All developing	84	77.9	84.5	87.4

Note: The data for Congo, Gambia, Guinea-Bissau and Guyana are missing.

a. EIAL countries are early-intensive adjustment lending countries and OAL countries are other adjustment lending countries. The non-adjustment lending (NAL) countries are divided into those whose per capita real GDP increased from 1981 to 1988 (NAL+) and those where it decreased (NAL-). The low-income countries (LIC) are those that received IDA loans in FY89, the middle-income countries (MIC) those that did not.

Source: United Nations Educational, Scientific and Cultural Organization (UNESCO).

Table 4–23. Average Student/Teacher Ratio

Country classification [a]	Number of countries	1965	1970	1975	1980	1985
EIAL	25	40.9	39.6	38.9	37.0	35.3
LIC	12	41.3	41.3	43.3	41.8	40.9
MIC	13	40.5	38.1	34.8	32.5	30.2
OAL	27	39.6	38.4	39.0	37.9	37.5
LIC	15	42.2	41.5	43.5	41.8	41.9
MIC	12	36.3	34.7	33.3	32.9	32.0
NAL+	14	39.2	36.3	35.4	33.9	33.8
LIC	5	48.2	43.0	42.8	45.5	45.0
MIC	9	34.2	33.0	31.7	29.2	28.2
NAL-	18	41.6	42.4	41.6	40.9	35.3
LIC	7	48.0	47.4	49.3	52.0	42.0
MIC	11	37.5	39.2	36.6	33.8	31.1
All developing	84	40.3	39.2	38.9	37.6	35.8

Note: The data for Gambia, Guinea-Bissau and Guyana are missing.

a. EIAL countries are early-intensive adjustment countries and OAL are other adjustment lending countries. The non-adjustment lending (NAL) countries are divided into those whose per capita real GDP increased from 1981 to 1988 (NAL+) and those where it decreased (NAL-). The low-income countries (LIC) are those that received IDA loans in FY89, the middle-income countries (MIC) those that did not.

Source: United Nations Educational, Scientific and Cultural Organization (UNESCO).

The OAL and NAL country groups on average improved their enrollment ratios between 1980 and 1985. In Mozambique (NAL), however, the enrollment ratio declined substantially, from 99.2 percent in 1980 to 85.8 percent in 1985. Oman (NAL) demonstrated the most improvement, mainly as a result of a substantial increase in government expenditures on education (its share of education expenditures in total non-interest government expenditures increased from 7.2 percent in 1981–84 to 10.1 percent in 1985–87).

It could be argued that the recession may have had the most immediate impact on the quality of education rather than on the quantity of enrollments, as indicated by the ratios. Here the student/teacher ratio, defined as the number of students enrolled per teacher, was used as a proxy for the quality of education. The average values of this ratio for different country classifications, presented in table 4–23, show that the ratio improved substantially for the EIAL countries. Because of the cuts in government expenditures on education that took place in the EIAL countries, the growth rate of teachers was likely to have declined. UNESCO data confirmed this point: the growth rate of primary school teachers in EIAL countries fell from 4.2 percent in 1975–80 to 2.1 percent in 1980–85. This drop, combined with the falling student/teacher ratio, implies that the growth rate of students enrolled slowed even more.

Why did the growth rate of students enrolled slow when there were teachers available in the schools? It is difficult to answer this question without carrying out detailed country studies. One possible explanation may be that the demand for education fell: when families are faced with falling incomes, they withdraw their children from school to save on educational expenditures and to have the children contribute to household income. This pattern may be especially true for low-income households whose time horizons are relatively short and who place less value on benefits that come several years in the future.

Whatever the reason, declining enrollment ratios are inconsistent with long-term growth and development objectives. As such, they are likely to be detrimental to the objectives of adjustment as well.

Conclusions

The evidence shows that changes in living conditions in the short run do not appear to have been systematically related to adjustment lending. The short-run indicators of living conditions did not deteriorate in the EIAL countries, and the long-run indicators continued to improve because of past investments.

The trends in the labor indicators do not provide conclusive evidence of a systematic relationship between Bank-supported adjustment lending policies and negative effects on labor. However, in some countries, formal labor, especially in the manufacturing sector, bore a larger share of the

burden than did other income groups. It is unclear whether this adjustment was a necessary reduction from unsustainably high levels or if formal labor in manufacturing was unfairly burdened by the adjustment.

The specific conclusions to be drawn from the labor indicators are as follows. Data on the economy-wide compensation of employees as a share of total GDP reveal that the average for the EIAL countries fell by more than that in other country groups. However, the EIAL median values, which may better reflect the "typical" country, did not fall from 1970–80 to 1985–87 as they did for the other country groups. In 13 of 16 countries, growth regressions did not reveal significant deviations in the share of employee compensation in GDP from trend growth during the loan years. While the data on unemployment were sparse, more than half the EIAL countries experienced improvements in employment in the 1985–87 period relative to the rates that prevailed in the late 1970s.

In the rural sector, the data on growth in per capita real agricultural purchasing power showed that both the averages and the medians fell from 1970–80 to 1981–84 and then recovered in 1985–87 for the EIAL, OAL and NAL groups. However, between the second and third periods the EIAL average and median improved by more than those of the OAL and NAL groups, and both the EIAL average and median growth rates ended up higher than in the 1970s. Real wages in agriculture improved between 1970–80 and 1985–87 in about half the EIAL countries, but the data were too sparse for a comparison with other country groups. In 11 of 18 countries, during the loan years there were no significant deviations from the trend growth in agricultural wages, and in the other 7 countries, about half had positive deviations during the loan years.

In the urban sector, the data on the share of the wage bill in total value added in the manufacturing sector showed that the averages and medians for all country groups fell between 1981–84 to 1985–87. However, in the EIAL countries the average and median in 1985–87 were lower than those in the 1970s, and for the OAL and NAL groups the medians were higher. The average growth and median growth of real wages in manufacturing were also lower for the EIAL countries than for the OAL and NAL countries in 1985–87. Growth regressions reveal that for 13 of 20 countries, there were no significant deviations from trend growth during the loan years in the share of the wage bill in manufacturing. The other seven countries showed significant negative shifts during the loan years.

Government wage earners in the EIAL countries appear to have been affected by cuts in wages and/or employment. These cuts were often required to restore fiscal budgets and remove distortionary wage differentials. The average and median for the share of government expenditures on wages and salaries out of non-interest expenditures fell continuously for the three time periods for the EIAL countries. For

the other two groups, the averages fell initially but then rose in the latter period. For construction workers, the data on real wages were not conclusive, but in about half the cases in each country group, the real wages rose from 1970–80 to 1985–87. In 12 of 19 countries, there were no significant deviations of real construction wages from trend growth during the loan years. For the other seven countries, two had positive shifts during the loan years. Finally, the data on the ratio of the food price index to the consumer price index showed that for all country groups except NAL- the averages and medians fell in the third period to ratios lower than those in the late 1970s.

The review of trends in social indicators did not reveal a discernible difference between adjustment lending and non-adjustment lending countries. EIAL countries showed more growth in private consumption during 1985–88 than did the non-adjustment lending countries. As to health indicators, although the within-group variation was large, the overall trends in health indicators improved in all country groups: there were continuing declines in the rates of infant and child mortality; immunization coverage was increasing; and by and large the nutrition indicators were positive, with the notable exception of the Africa region, where about one-third of the Sub-Saharan countries experienced a worsening in nutritional status between 1980 and 1986. In summary, regardless of their adjustment status, developing countries made progress in terms of social indicators during the eighties. However, progress was slowest in those countries that already had the worst social indicators.

The data on the shares of expenditures in the social sectors and on enrollment ratios reveal some problems. Those for a few countries showed a decreasing ratio of government non-interest expenditures to GDP. Closer examination of government expenditures showed that the share of expenditures on the social sectors also decreased in some of these countries, especially the EIAL ones. This decline is particularly worrisome in the education sector, where the reduction in the share of education expenditures was accompanied by a decrease in primary enrollment rates. If measures are not taken to protect government expenditures for the social sectors, some developing countries may face the erosion of one of the pillars of economic growth: human capital. This trend is inconsistent with the objective of sustainable long-term growth, which is central to adjustment policies.

What do these findings suggest for future Bank-supported adjustment policies? The fact that this paper is unable to detect any discernible difference in the trends in living conditions between adjustment lending and non-adjustment lending countries probably says more about the usefulness of the specific country groupings than about the effects of any sets of adjustment policies on social outcomes. The important point is that, while there was no evidence that Bank-supported adjustment lending policies per se had an adverse effect—with the exception of the

decline in manufacturing labor's wage share in GDP and declining primary school enrollment ratios in the EIAL countries—on any of the labor and social indicators examined, the chapter did not find evidence that adjustment policies accelerate progress where it is most needed. These policies should be faulted for that limitation, and the focus on long-term poverty reduction should be more integrated into the SAL design.

It is therefore recommended that long-term objectives to reduce poverty (to achieve improvements in the labor and social indicators) should be systematically integrated into adjustment programs. Despite the overall social progress observed, the unacceptably high levels of mortality and malnutrition prevailing in many developing countries raise the question whether more can be done to improve the incomes of the poor and social conditions even during the transition to adjustment. The record shows that progress can be achieved and maintained under austere economic conditions. Given the inefficiencies in the social sectors, there is scope for improvements in social conditions without large budgetary consequences.

Compensatory interventions are required to mitigate the transitory costs of adjustment on readily identifiable groups. However, greater attention needs to be devoted to strengthening the analytic underpinnings of these interventions. The longer than anticipated transition period of adjustment, coupled with the frequency and magnitude of compensatory interventions, may render the current ad hoc approach unsustainable. In parallel with the design of short-term compensatory interventions, it is crucial that the emphasis on the development of a longer term reduction in poverty be maintained through policies that improve the incomes of the poor and through economic and sector work and social sector lending. The aim of these measures is to guarantee sustainable success against the correlates of poverty.

Appendix Table 4–1–1. Country Classification

EIAL	OAL	NAL+	NAL-
LIC			
Bolivia	Bangladesh	India	Benin
Ghana	Burkina Faso	Lesotho	Ethiopia
Kenya	Burundi	Myanmar	Haiti
Madagascar	Central	Sri Lanka	Liberia
Malawi	African Rep.	Yemen Arab	Mozambique
Mauritania	Chad	Rep.	Rwanda
Nigeria	China		Yemen, PDR
Pakistan	Gambia, The		
Senegal	Guinea		
Tanzania	Guinea-Bissau		
Togo	Guyana		
Zambia	Mali		
	Nepal		
	Niger		
	Sierra Leone		
	Somalia		
	Sudan		
	Uganda		
	Zaire		
MIC			
Brazil	Argentina	Botswana	Algeria
Chile	Congo,	Cameroon	Dominican
Colombia	People's Rep.	Egypt, Arab	Rep.
Costa Rica	Ecuador	Rep.	El Salvador
Côte d'Ivoire	Gabon	Greece	Guatemala
Jamaica	Honduras	Jordan	Nicaragua
Korea	Hungary	Malaysia	Paraguay
Mauritius	Indonesia	Oman	Peru
Mexico	Panama	Papua New	South Africa
Morocco	Tunisia	Guinea	Syrian Arab
Philippines	Uruguay	Poland	Rep.
Thailand	Yugoslavia	Portugal	Trinidad and
Turkey	Zimbabwe		Tobago
			Venezuela

Note: EIAL countries are early-intensive adjustment lending.
OAL countries are other adjustment lending.
NAL countries are non-adjustment lending, divided into
NAL+ whose per capita real GDP increased from 1981 to 1988 and
NAL- whose per capita real GDP decreased from 1981 to 1988.
LIC (low-income countries) are those that received IDA loans in FY89 and
MIC (middle-income countries) are those that did not receive such IDA loans.
Source: World Bank (1990b).

Notes

1. Some recent empirical analyses of the poverty impacts of adjustment are Behrman and Deolalikar (1989), Blejer and Guerrero (1988), Bourguignon, Branson and de Melo (1988), de Janvry, Fargeix and Sadoulet (1989), Glewwe and de Tray (1988 and 1989), Kakwani (1989), Kanbur (1990), and Ravallion and Huppi (1989).

2. Both Behrman (1988) and the just cited study, which is not available to the public, describe the difficulties in evaluating the impact of adjustment programs on income distribution and poverty.

3. The countries are categorized as early-intensive adjustment lending (EIAL) if they received at least two structural adjustment loans (SALs) or three adjustment operations (SALs or sector adjustment loans [SECALs]), with the first such loan having been made prior to or during 1985. Other adjustment lending (OAL) countries are those that received loans after 1985 or received less than two SALs or three adjustment operations. Non-adjustment lending (NAL) countries are those that did not receive any Bank adjustment loans between 1980 and 1988. NAL+ countries are non-adjustment lending countries that had a positive annual rate of growth in per capita real GDP from 1981–88; NAL- countries are those that had a negative rate of growth of GDP. Eighty-eight developing countries are categorized into these groups, as listed in appendix table 4–1–1.

4. The loan years are defined as all the years during which a loan was disbursed. The first year of disbursement was included because there were usually policy conditions that had to be met prior to Board approval of the loan.

5. Data availability for a country requires that each of the three time periods have at least two observations. This minimum was relevant for the third time period (1985–87), as most other time periods had more than two data points.

6. The underlying country-specific data for this and all subsequent tables are available in Maasland and van der Gaag (1990).

7. See chapter 3, "World Bank-Supported Adjustment Programs: Country Performance and Effectiveness," by Vittorio Corbo and Patricio Rojas, in this volume for a discussion of these methodologies. The regression results were presented in Maasland and van der Gaag (1990).

8. It is difficult to compare two distributions that cross. This difficulty is commonly encountered in comparisons of changes in the distribution of income over time. Different inequality measures are more sensitive to changes in different parts of the size distribution than others, so that these measures can result in different conclusions about the changes in income distribution over time. See Chapernowne (1974).

9. See Corden (1985, chapter 2), who argues that labor is likely to be negatively affected by devaluations. In addition to the expenditure-switching effect described in the text, real devaluations can be contractionary, a characteristic that may also affect labor negatively.

10. This technique was used by Behrman and Deolalikar (1989) in their analysis of indicators in Jamaica.

11. The estimated growth equation is $\ln X = a + bt + ct^2 + fD$ where X is the indicator, t is time and D takes the value of one in the loan years. If the Durbin-Watson statistic indicates serial correlation, an AR1 correction is made. The impact of D on X is calculated as $e^f - 1$ and is reported in table 4–3 for countries with statistically significant coefficients, f.

12. As Behrman and Deolalikar (1989) note, there may be some offsetting effects, but they are unlikely.

13. National disposable income is a measure of the income domestic residents have for consumption. It includes net factor income from the rest of the world (negative for high debt countries) and net current transfers from the rest of the world and excludes depreciation on capital. These data are from the United Nations national accounts statistics.

14. The real effective exchange rate depreciated from 107 in 1981–84 to 79 in 1985–88 in the EIAL countries. See chapter 3, "World Bank-Supported Adjustment Programs: Country Performance and Effectiveness," by Vittorio Corbo and Patricio Rojas, in this volume.

15. Agricultural purchasing power is defined as the nominal value added in agriculture (data from the World Bank), divided by the consumer price index (CPI) (from the IMF), divided by the rural population (from the World Bank).

16. Rural non-agricultural production generally moves in the same direction as agricultural production, a pattern that amplifies the growth rates for rural incomes.

17. See Chapter 3, "World Bank-Supported Adjustment Programs: Country Performance and Effectiveness," by Vittorio Corbo and Patricio Rojas, in this volume, for the methodology and Maasland and van der Gaag (1990) for the regression results.

18. Significant at least at the 10 percent level.

19. This section is a reduced and revised version of Kakwani, Makonnen and van der Gaag (1990), which was prepared as a background paper for World Bank (1990b). The present section uses straight arithmetic averages across countries, whereas the original paper used population-weighted averages. In addition, here the focus is on the differences across countries when they are grouped by adjustment lending category; regional averages are not reported as was done in the original paper.

20. See chapter 3, "World Bank-Supported Adjustment Programs: Country Performance and Effectiveness," by Vittorio Corbo and Patricio Rojas, in this volume, for an analysis of the investment performance of adjustment lending country groups.

21. The methodology used is that developed by Vittorio Corbo and Patricio Rojas in "World Bank-Supported Adjustment Programs: Country Performance and Effectiveness," chapter 3, this volume. The regression results for consumption are presented in Maasland and van der Gaag (1990).

22. Furthermore, a reduction in total public and private expenditures on social services may not lead to an immediate reduction in the amount of services provided. For instance, a freeze on wages for doctors and teachers may not reduce services at all in the short run, although in the long run inadequate salary levels may severely lessen the quality of services. Maintaining employment and salary levels by reducing funds for equipment, drugs, school books and other essential complementary inputs could, on the other hand, hurt the poor who rely on public social services.

23. Countries were selected if they had social expenditure data for the years 1981 through 1986.

24. The average for the EIAL countries was affected by the large reallocation of social sector spending in Costa Rica. Without Costa Rica, the EIAL averages for the share of education in the three time periods were 15.5 percent, 17.0 percent and 15.9 percent; for health, 4.6 percent, 4.2 percent and 4.3 percent; and for the "other" category, 15.2 percent, 16.4 percent and 16.1 percent.

25. DHS data are produced from actual surveys by the Institute for Development, Columbia, Maryland.

26. While the use of calorie norms to estimate the global number of adequately nourished people does have serious limitations, calorie norms can be usefully employed to assess the *changes* in the degree of nutrition at an aggregate level.

27. Per capita protein consumption was also examined. In general, protein consumption improved in all countries throughout the eighties, with no apparent relationship between adjusting and non-adjusting countries.

References

Behrman, Jere A. 1988. "The Impact of Economic Adjustment Programs." In David E. Bell and Michael R. Reich (eds.), *Health, Nutrition and Economic Crises*. Dover, Mass.: Auburn House.

Blejer, M., and I. Guerrero. 1988. "The Impact of Macroeconomic Policies on Income Distribution: An Empirical Study." IMF Working Paper WP/88/57. International Monetary Fund. Washington, D.C.

Bourguignon, F., W. Branson and J. de Melo. 1988. "Macroeconomic Adjustment and Income Distribution: A Macro-Micro Simulation Model." Organisation for Economic Development and Co-operation. Paris.

Chapernowne, D. G. 1974. "A Comparison of Measures of Income Distribution." *Economic Journal* 84 (December):787-816.

Corden, M. 1985. *Inflation, Exchange Rates, and the World Economy*. Oxford: Clarendon Press.

Cornia, G. A., Richard Jolly and Frances Stewart (eds.). 1987. *Adjustment with a Human Face.* Vol. 1, *Protecting the Vulnerable and Promoting Growth*. New York: Oxford University Press.

de Janvry, A., A. Fargeix and E. Sadoulet. 1989. "Economic, Welfare, and Political Consequences of Stabilization Policies: A General Equilibrium Approach." Mimeo. University of California at Berkeley. Berkeley, California.

Glewwe, P., and D. de Tray. 1988. "The Poor During Adjustment: A Case Study of Côte d'Ivoire." Living Standards Measurement Study (LSMS) Working Paper No. 47. Welfare and Human Resources Division. World Bank. Washington, D.C.

———. 1989. "The Poor in Latin America During Adjustment: A Case Study of Peru." Living Standards Measurement Study (LSMS) Working Paper No. 56. Welfare and Human Resources Division. World Bank. Washington, D.C.

Heller, Peter, and Jack Diamond. 1989. "Government Expenditure Policies in the LDCs in the 1980's, International Expenditure Comparisons Revisited: 1975-86." Mimeo. International Monetary Fund. Washington, D.C.

Hill, Kenneth, and A. Pebley. 1988. "Levels, Trends and Patterns of Child Mortality in the Developing World." Mimeo. John Hopkins University. Baltimore, Md.

International Labour Organisation (ILO). Various issues. *Yearbook of Labor Statistics*. Geneva: ILO.

International Monetary Fund (IMF). Various issues. *Government Finance Statistics*. Washington, D.C.: IMF.

Kakwani, N. 1990. "Poverty and Economic Growth with Applications to Côte d'Ivoire." Living Standards Measurement Study (LSMS) Working Paper No. 63. Welfare and Human Resources Division. World Bank. Washington, D.C.

Kakwani, N., E. Makonnen and J. van der Gaag. 1990. "Structural Adjustment and Living Conditions in Developing Countries." Policy, Research and External Affairs (PRE) Working Paper no. 467. World Bank. Washington, D.C.

Kanbur, R. 1990. "Poverty and the Social Dimensions of Structural Adjustment in Côte d'Ivoire." Social Dimensions of Adjustment in Sub-Saharan Africa, Working Paper No. 2. World Bank. Washington, D.C.

Maasland, A., and J. van der Gaag. 1990. "World Bank-Supported Adjustment Programs and Living Conditions." A paper prepared for the Conference on Adjustment Lending: Policies for the Recovery of Growth. World Bank. Washington, D.C.

Pan American Health Organization (PAHO). 1989. "Health and Development: Repercussions of the Economic Crisis." Washington, D.C.

Preston, Samuel. 1986. "Review of Richard Jolly and Giovanni Andrea Cornia, editors, *The Impact of World Recession on Children*." *Journal of Development Economics* 21 (2):374-76.

Ravallion, M., and M. Huppi. 1989. "Poverty and Undernutrition in Indonesia During the 1980s." Policy, Planning and Research (PPR) Working Paper no. 286. World Bank. Washington, D.C.

Sahn, David. 1989. "Fiscal and Exchange Rate Reforms in Africa: Considering the Impact upon the Poor." Mimeo. Cornell University. Ithaca, N.Y. Prepared for the African Bureau, U.S. Agency for International Development.

United Nations. 1987. "The First Report on World Nutrition Situation." Administrative Committee on Co-ordination/Subcommittee on Nutrition. Rome, Italy.

———. 1989. "Update on the Nutrition Situation: Recent Trends in Nutrition in 33 Countries." Administrative Committee on Co-ordination/Subcommittee on Nutrition. Geneva, Switzerland.

———. Various issues, a. *Industrial Statistics Yearbook*. New York: United Nations Industrial Development Organization.

———. Various issues, b. "National Accounts Statistics: Main Aggregates and Detailed Tables." New York.

van der Gaag, J., E. Makonnen and P. Englebert. 1991. *Trends in Social Indicators and Social Sector Financing*. Welfare and Human Resources Division, PRE Staff Working Paper no. 662. Washington, D.C.: World Bank.

World Bank. 1990a. *World Development Report 1990*. New York: Oxford University Press.

———. 1990b. *Adjustment Lending Policies for Sustainable Growth*. Policy Research and External Affairs Series no. 14. Washington, D.C.

World Health Organization. 1989a. "Expanded Program on Immunization: Progress and Evaluation Report." Prepared by Expanded Programme on Immunization. Geneva, Switzerland.

———. 1989b. "World Immunization Reaches 2/3 Mark." Press Release WHO/35. Geneva, Switzerland. August 17.

Comments

Jere R. Behrman

This paper presents a careful cross-country statistical analysis of various indicators of living conditions (in particular, labor and social indicators) in developing countries and looks at 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: EIAL; OAL; and NAL.

In their summary the authors' state that the evidence does not reveal much in the way of systematic relationships between Bank-supported adjustment programs and short-run effects as measured by labor and social indicators. Among the labor indicators, the shares of employee compensation in GDP and agricultural wages in GDP seem not to have been significantly affected. The average and median growth rates in real per capita rural incomes were higher in the EIAL countries in 1985–88 than they were in the 1970s, but the share of the manufacturing wage bill in manufacturing value added tended to be lower. Among the social indicators, the growth of per capita consumption was higher overall in the EIAL than in the other countries, and the nutrition, immunization and mortality data indicated continued progress in all country groups. However, the shares for health and education expenditures in total government expenditures and the primary school enrollment rates showed a tendency to decline in the EIAL countries, with possible long-run costs in terms of human resources.

In their conclusion the authors commented:

> The fact that this paper is unable to detect any discernible difference in the trends in living conditions between adjustment and non-adjustment lending countries probably says more about the usefulness of the specific country groupings than about the effects of any sets of adjustment policies on social outcomes. What is important is that, while there was no evidence that Bank-supported adjustment lending policies per se had an adverse effect—with the exception of the decline in manufacturing labor's wage share in GDP and declining primary school enrollment ratios in the EIAL countries—on any of the labor and social indicators examined, the chapter did not find evidence that adjustment policies *accelerate social progress*...These policies should be faulted for that limitation, and the focus on long-term poverty reduction should be more integrated into the SAL design...Given the inefficiencies in the social sectors,

there is scope for improvements in social indicators without large budgetary consequences.

Compensatory interventions are required to mitigate the transitory costs of adjustment on readily identifiable groups. However, greater attention needs to be devoted to strengthening the analytic underpinnings of these interventions...parallel with the design of short-term compensatory interventions, it is crucial that the emphasis on the development of a longer term reduction in poverty be maintained through policies that improve the incomes of the poor and through economic and sector work and social sector lending. The aim of these measures is to guarantee sustainable success against the correlates of poverty.

My comments on this paper are organized around several broad topics: methodology; statistical issues; interpretation of the results; conclusions; and the relation of this paper to some of the other concerns raised in this conference.

General Methodology

Broadly speaking, the methodology is sensible and appropriate, with a commendable effort to look carefully at the empirical results and the distributions across countries (for example, to incorporate concerns about medians as well as means so as to limit the influence of outliers). Some questions, however, can still be usefully addressed.

- Cross-country studies versus country case studies. In a world in which information and analytical tools are limited, both types of studies contribute to the knowledge base. Given that a number of case studies have already been carried out on the impact of adjustment programs on living conditions, at this time a careful cross-country study has definite value in terms of providing as broad a perspective as possible, despite the inherent limitations of the approach. If anything, the authors overly qualify the value of this approach.
- Definition of country groups. The use of Bank-assisted adjustment as the criterion for assigning countries to groups has the advantages of being a relatively clean criterion and of addressing the interests of the authors' employer. From a broader point of view, however, a more relevant criterion would be what policies various countries followed rather than whether they happened to be Bank-assisted. The effects of various policies should be the center of interest, rather than a particular institutional affiliation. This approach would require more work, but the returns from defining country groups by clusters based on the extent of policy change (for

example, changes in the governmental deficit relative to GDP and in the real exchange rate) would be high.

• Sensitivity to outliers. The authors showed substantial sensitivity to outliers in summarizing their results, a commendable point. Nevertheless, that some of the results are very sensitive to the inclusion or not of one country such as Costa Rica or Chile is troublesome. To their credit, the authors seem quite conscientious about reporting such sensitivity for the countries in their samples. What is troublesome is the possibility that the addition of a few countries that are not included because of inadequacies in the data would change the results significantly.

Statistical Issues

The use of statistical techniques to summarize the considerable information that is covered is commendable. This approach also imposes some discipline, which lessens the possibility of seeing only the patterns in the data that are consistent with the researcher's expectations or with the experience of a selected country or two. This very bias seems present at times in the literature on the impact of structural adjustment. The use of statistical techniques also makes very explicit exactly what comparisons are being made. The Corbo-Rojas procedure, with its extension to include specific policy variables, is another improvement in the tools for such analysis.

Nevertheless, some questions remain about the statistical techniques:

• Uniformity of approaches. At times the authors give good reasons, which relate to the few countries for which observations are available for a particular indicator, for why they limit their techniques. At other times, however, they do not explain their use of a technique for one indicator and not for another. For example, why did the authors not use, in the case of the social indicators, the Corbo-Rojas procedure with the Maasland-van der Gaag extension to include explicit policies and the Behrman-Deolalikar deviation from secular trends? The apparently arbitrary switch in techniques left this reader puzzled and should be remedied.

• Endogeneity of the right-side variables. The Corbo-Rojas procedure recognizes explicitly the endogeneity of the decision to participate in a Bank-assisted adjustment program and accounts for this variable in the estimates through the use of instrumental variables. While the method may have had an element of arbitrariness in it (to paraphrase Charles Manski in his recent survey, "Exogeneity of instruments, like beauty, is in the eye of the beholder"), the exploration of the extent to which this treatment changes the estimates is to be commended (although the authors might have summarized how this treatment changed the results and have elaborated on the instruments used). On the other hand, the Corbo-Rojas procedure apparently treats the lagged

values of the outcomes of interest as if they were independent of the stochastic term. This approach seems quite implausible. The stochastic term surely had to have had some country effects in it, as well as some omitted variables that were correlated over time. Therefore instrumental variables should have been used for the lagged outcome variables as well. Finally, the Maasland-van der Gaag application of this procedure apparently uses OLS and does not concern itself with endogeneity. While the issue of simultaneity is a severe one for such aggregate estimates, so that reasonable analysts might differ in their perceptions about how it is best treated, it certainly would have been best not to have ignored it. It would have been preferable at least to have reported how robust the results were relative to alternative treatments of it.

• Differential country populations. If I understand correctly, the analysis was of unweighted data. That is, Botswana, for example, was weighted the same as China, even though the latter had about 1,000 times the population of the former. In calculating averages, this procedure is troublesome since, by treating all countries equally, each Han (in China) was weighted about a thousandth of a Tswana (in Botswana). Is the lack of weighting also troublesome with respect to the regression analysis? Here the answer is not obvious. If the regression was linear in the (perhaps transformed) regression variables and if there was no heterogeneity in the stochastic terms that were associated with population size, then it does not seem the procedure would have caused any biases. However, if the Asian countries (which include most of the countries with greater populations) had, say, more unobserved reverence for learning or less land available, the estimation of the relation between school enrollments and adjustment policies may have been biased by the use of a selection rule that underrepresented Asian *individuals*.

Interpretation of the Results

In most respects, once again the authors were very careful. However, a few comments are in order:

• Use of shares (such as labor compensation). The use of shares focuses on whether or not some group's income or some expenditure remained in the same proportion to some denominator. Maintaining the same proportion of the same denominator is, however, consistent with declining or increasing absolute values, a point that perhaps should have been emphasized more. Moreover, if many individuals within a particular group are close to some critical subsistence level, as Ravallion (1990a and 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 of using aggregate data that obscures the distribution within countries and the possibility that it might have been desirable to weight the changes more heavily for the poorer people in light of the

purposes of the present paper. Incidently, if that approach had been taken, the poorer groups in the EIAL countries (who live largely in rural areas) might well have emerged as having improved their situation with regard to labor outcomes rather than just maintaining it, as Maasland and van der Gaag seem to summarize in the overall impact on labor.

• Integration with other relevant studies. The results would have benefited from being integrated explicitly with other recent studies of the impact of adjustment or a major component of adjustment programs. For example, the studies by Krueger, Schiff and Valdes (1988) or by Binswanger (1989) might usefully have been cited to highlight the apparent difference between the results for urban and rural workers. Similarly, it would have been useful to have illuminated some of these aggregate results with some relevant recent micro household studies. For instance, the limited impact on nutrition and on health seems consistent with recent results that, for the poor, the demand for nutrients has a relatively low income elasticity (for example, Behrman and Deolalikar 1987, Bouis and Haddad 1990, and Thomas and Strauss 1990) while the demand for health care has a high price elasticity (for example, Gertler and van der Gaag 1987).

Conclusions

The authors' conclusions, summarized at the start of these comments, raise several issues (in addition to the possibility noted above that the authors overly downgrade their results):

• Status of indicators has no association with adjustment programs. Although the authors recognize some effects, their conclusion states that in the study they did not identify differences associated with adjustment. A more positive assessment might have been appropriate in the case of the improvement in rural incomes, even for the short-run effects, given that most of the poor live in rural areas. That assessment would stand in sharp contrast, even more than the authors' present summary does, with the conclusion drawn from the UNICEF studies that the impact of adjustment on the poor and on human resources was negative.

• The statement that "...greater attention needs to be devoted to strengthening the analytic underpinning of these interventions" above should be elaborated. Does the paper provide any support for such interventions? Is this statement based on unsupported priors or the conjecture of others?

• The basic point that the reduction of poverty is critical and that this basic longer run problem should be addressed without unduly diverting resources to ad hoc short-term compensatory measures is appropriately emphasized. Some examples of how resources and attention might have been diverted inappropriately to ad hoc short-term measures would have been useful.

Relation to Other Issues Raised at the Conference

Some elaboration on a number of other issues raised at the conference that were referred to only briefly or not at all in the paper would have been useful:

• Sequencing and the social sectors and the poor. Is there any evidence on the relationship between the sequencing of the stabilization and structural changes and the impact on the social sectors and the poor?

• Maintenance or improvement of short-run consumption but reduction of longer run investment. There seems to be evidence of such a pattern for the indicators covered in the paper as well as for other indicators discussed in other papers. Can some light be shed on the extent to which the decline in public investment in the social sectors was associated with expanded private investments, increased efficiency of resource use in the social sectors, and/or reduced prices for such investments (for example, as a result of reduced real wages for personnel in such activities)?

• Strengthening the government in activities in which it has a comparative advantage. Steven Webb, in his discussion of his paper co-authored with Karim Shariff, emphasized the importance of shifting the composition of government activities to reflect better the comparative advantages of governments. He suggested explicitly that the social sectors are one such area in which governments should become more active. Is there any evidence that such shifts tend to be part of adjustment programs? Is there any way in which adjustment programs change the efficiency and distributional criteria for judging what policies should be adopted in the social sectors?

References

Behrman, Jere R., and Anil B. Deolalikar. 1987. "Will Developing Country Nutrition Improve with Income? A Case Study for Rural South India." *Journal of Political Economy* 95 (3)(June):108-38.

Binswanger, Hans. 1989. "The Policy Response of Agriculture." *Proceedings of the World Bank Annual Conference on Development Economics* 231-58.

Bouis, Howarth E., and Lawrence J. Haddad. 1990. "Are Estimates of Calorie-Income Elasticities Too High? A Recalibration of the Plausible Range." Mimeo. International Food Policy Research Institute (IFPRI). Washington, D.C.

Gertler, Paul, and Jacques van der Gaag. 1987. "Measuring the Willingness to Pay for Social Services in Developing Countries." Mimeo. World Bank. Washington, D.C.

Krueger, Anne O., Maurice Schiff and Alberto Valdes. 1988. "Agricultural Incentives in Developing Countries: Measuring the Effect of Sectoral and Economy-wide Policies." *World Bank Economic Review* 2 (3)(September):255-72.

Ravallion, Martin. 1990a. "Does Undernutrition Respond to Incomes and Prices?" Mimeo. World Bank. Washington, D.C.

———. 1990b. "Income Effects on Undernutrition." *Economic Development and Cultural Change* 38:489-516.

Thomas, Duncan, and John Strauss. 1990. "The Shape of the Calorie-Expenditure Curve." Mimeo. The RAND Corporation. Santa Monica, Calif.

Frances Stewart

The paper presents a careful and comprehensive review of the major social effects of World Bank adjustment lending. However, from the perspective of whether the policies can be commended from a social point of view, and from the perspective of the formulation of future policy, the paper is far too preoccupied with an assessment of the effects of Bank adjustment lending compared with some counterfactural scenario, rather than looking at *what actually happened* to the human condition over the 1980s in both adjusting and non-adjusting countries.

If the concern is to develop appropriate policies for the 1990s, then three questions need to be answered in the social area:

(1) Was the situation satisfactory?
(2) If not, could it have been improved?
(3) If so, how?

The Maasland-van der Gaag paper does not directly address these questions but rather considers whether adjusting countries did as well as non-adjusting ones, after allowing for exogenous shocks. There is no reason to disagree with the main conclusion that, on balance and with the exception of the education variables, Bank adjustment policies did not have negative social effects, despite some problems with the methodology (these arise from the somewhat arbitrary dividing line between early-intensive adjusters, adjusters and non-adjusters and the precise periods chosen for study) and despite the absence of some estimates of the sensitivity of the conclusions to methodological choices, an addition that would have made the results more robust. Indeed, the finding was not unexpected since the negative social effects identified, for example, in *Adjustment with a Human Face* (Cornia, Jolly and Stewart 1987), were mainly the result not so much of the supply-focused policies of Bank adjustment lending than of adverse external factors (recession, falling commodity prices, high interest rates, negative capital movements and, in some cases, unfavorable weather) and the IMF's deflationary/expenditure-cutting stabilization policies. Critics of Bank adjustment lending are not so much concerned with the negative effects of Bank policies as such, but rather with the failure of Bank (and Fund) adjustment policies to protect the poor from the adverse negative trends in human conditions in the 1980s, which had multiple causes.

When the evidence on what actually happened to social conditions during the adjustment period of the 1980s is reviewed, the picture that emerges is much less complacent than that provided by Maasland and van der Gaag. In Africa and Latin America as a whole (both adjusting and non-adjusting countries), per capita incomes fell during the 1980s in 17 out of 23 adjusting countries[1] in Africa and 11 out of 13 in Latin America. However, Asian countries (including many of the adjusting countries) did much better. About two-thirds of the countries in Africa and Latin America also experienced declines in per capita consumption, although typically they were less severe.

The drop in income was particularly focused on urban areas as a result of falling real wages and a slowdown or fall in the growth of employment. However, the rural population was not unaffected. Even where the adjustment policies raised rural incomes through increases in the prices of cash crops, the incomes of the poorest often fell because they were generally less involved in the production of those crops. Thus in the Côte d'Ivoire, the incomes of food producers, among whom rural poverty was concentrated, fell the most during the 1980–85 adjustment period (Kanbur 1990). Similarly, in Ghana the rural poor were less involved in cocoa production than were average rural households. There were pervasive, and often substantial, cuts in per capita real expenditures on health and education that affected about 60 percent of the adjusting countries. Thus, for many countries, adjusting as well as non-adjusting, and especially in Latin America and Africa, the conditions of human life deteriorated over the 1980s as a result of declining real incomes and lesser provision of basic social services.

The rapid expansion of low-cost health interventions— notably immunization and oral rehydration therapy—that also took place over those years helped to protect infants against these worsening conditions. In most countries where accurate data were available, the rates of infant and child mortality continued to decline, as shown in the Maasland- van der Gaag chapter, although the rate of improvement slowed in some countries, and in a few in Africa infant mortality rates rose. Nutrition standards worsened in the majority of countries in Africa, but only in a few countries in Latin America, where households were able to cushion the

impact of worsening income on nutrition by adapting consumption patterns. The decline in primary school enrollment was widespread, particularly in adjusting countries.

This very brief review[2] suggests the following answers to the three questions posed above:

(1) The situation was *not* satisfactory in many countries, although there were some notable successes in protecting the poor during adjustment. Moreover, the poor macro performance in many countries, including falling investment rates, together with weak educational achievements, augurs badly for both economic and social performance in the 1990s.

(2) Improvement in this performance is possible as indicated by some successful experiences—some countries managed to improve the position of the poor while successfully adjusting.

(3) Experience also suggests *how to* improve performance. Changes are needed at both the macro and meso levels. At the macro level, adjustment needs to be combined with *equitable growth* as indicated by Indonesia's experience, where the poor participated in economic growth and poverty levels fell substantially (Ravaillion and Huppi 1989). At the meso level, policies to restructure government expenditures toward the social sectors and, within the social sectors, toward basic services to which the poor have access, can protect and extend services for the poor even with expenditure cuts. Indonesia and Chile are examples. In contrast, the experience with compensatory or "add-on" programs, such as those instituted in Bolivia and Ghana, suggests these are rarely sufficiently comprehensive to protect the poor.

The Maasland-van der Gaag paper is correct in showing that, for the most part (with the important exception of education), Bank adjustment lending did not have bad effects on social conditions, in comparison with the performance of non-adjusting countries. However, the poor absolute performance of many countries, which encompassed many dimensions as reviewed above, is the most relevant issue for the future. It points strongly to the need for reforms in adjustment policies in the 1990s so that they produce the conditions under which poverty can be substantially reduced and the human condition improved in absolute terms.

Notes

1. "Adjusting" countries here include both early-intensive and other adjusters.

2. See Stewart (1990) for a much more detailed review.

References

Cornia, G.A., R. Jolly and F. Stewart (eds.). 1987. *Adjustment with a Human Face.* Vol. 1, *Protecting the Vulnerable and Promoting Growth.* New York: Oxford University Press.

Kanbur, R. 1990. "Poverty and the Social Dimensions of Adjustment in Côte d'Ivoire." Social Dimensions of Adjustment in Sub-Saharan Africa, Working Paper No. 2. World Bank. Washington, D.C.

Ravallion, M., and M. Huppi. 1989. "Poverty and Undernutrition in Indonesia During the 1980s." Policy, Planning and Research Working Paper no. 286. World Bank. Washington, D.C.

Stewart, F. 1990. "The Many Faces of Adjustment." A paper prepared for the International Conference on Policy-Based Lending, University of Manchester, Manchester, England, September 10-11, 1990.

Designing and Implementing Adjustment Programs

Steven B. Webb and Karim Shariff

The World Bank's adjustment lending has evolved in response to the experiences of the 1980s. This chapter describes that evolution, drawing on evidence from the Adjustment Lending Conditionality and Implementation Database (ALCID) and from internal background papers on the design and implementation of adjustment lending operations in various policy areas.

The chapter opens with an overview of the design and implementation of the adjustment lending program. It then looks at the major areas of policy that have been addressed—macroeconomic, government finances and administration, trade, agriculture, industry, financial sector, public enterprises and environment. A key point that the experience with adjustment lending reinforces is the importance of macroeconomic stability for the success of reforms in other areas. The third section discusses the timing and conditionality of adjustment lending and the rate of implementation of conditions. It is followed by an analysis of how the President's Reports and loan agreements describe the program and conditionality and how the specification of conditions affects their implementation. Finally, the chapter considers the political economy of adjustment—how a program can be designed and presented so as to build the political support needed to sustain adjustment. Some conclusions appear at the end of the paper.

Overview of Program Design and Implementation

While each adjusting country faces a unique set of problems and requires a unique mix of remedies, the Bank's cross-country experience suggests some general guidelines for the design of successful structural adjustment programs. A country's own program of reforms usually is broader than the components the Bank supports with adjustment lending and includes some elements that the International Monetary Fund (IMF) supports. The policy content of Bank-supported adjustment programs reflects both the Bank's traditional concern for long-term balanced economic development and alleviation of poverty and its need to deal with the balance-of-payments problems that accompanied the debt crisis of the 1980s. The policy reforms fall into three broad areas:

- Expenditure-reducing policies—principally fiscal and monetary measures aimed at bringing domestic demand into line with resources.
- Expenditure- and production-switching policies designed to encourage the production of tradable goods and discourage expenditures on them by raising the domestic price of tradables relative to the price of non-tradables.
- Supply-side, growth-oriented policies to remove the structural causes of the macroeconomic imbalances, to improve the efficient use of resources in the public and private sectors, to strengthen institutional capacities, and to increase saving, investment and growth.[1]

The broad picture of the reform program supported by each adjustment program is described in the Bank's President's Report, which is a document prepared by Bank staff to explain the rationale of the loan to the Board. A policy matrix at the end of the President's Report describes the actions that the government has taken or expects to undertake to bring about the adjustment being supported by the loan. A few of these actions, supposedly those most important for the program's success and most salient to the government's commitment to it, are spelled out as conditions or covenants in the Legal Agreement that sets forth the precise terms of the loan. Often there is also a Letter of Development Policy from the borrower government to the World Bank, explaining more fully what the government intends to do.

The components of the program dealing with the implementation of supply-side, growth-oriented policies on average account for over 80 percent of the conditions in the loan agreements and for a similar share of all actions called for in the President's Report (table 5-1).[2] As discussed below, expenditure-reducing and switching policy reforms are also vital. In particular, fiscal reforms that permanently reduce public sector deficits can enhance the benefits of supply-side reforms.

Table 5–1. Content of Conditionality, FY1979–89
(percent)

	Distribution of loan agreement conditions by policy area and country type [a]											
	All countries	*HICs*	*SSA*	*SALs*	*SECALs*	*Hybrid loans* [b]	*EIAL countries* [c]			*OAL countries*		*Distribution of all actions in President's Reports* [d]
							1979–85	*1986–88*	*1989*	*1979–85*	*1986–89*	
I. Supply-side, growth-												
oriented policies	85	89	82	77	91	90	88	88	88	87	80	84
Trade	16	22	14	15	17	4	26	17	11	10	13	16
Sectoral	28	23	26	18	35	62	36	21	44	53	23	28
Industry	4	4	4	3	4	5	6	4	7	4	2	5
Energy	6	3	2	3	7	31	5	4	24	2	4	5
Agriculture	17	16	19	12	20	19	25	13	12	47	14	17
Financial sector	10	12	7	10	9	1	3	14	18	9	7	10
Rationalization of gov't finance & administration	7	7	6	11	4	0	8	6	5	3	8	9
Public enterprise reforms	16	18	19	15	17	7	14	21	6	6	18	14
Social policy reforms	4	5	5	2	5	14	0	8	0	2	5	3
Others	4	2	5	4	3	1	1	2	2	3	7	5
II. Absorption reduction												
policies	12	9	13	18	8	8	11	10	9	9	15	11
Fiscal	9	7	12	16	6	7	9	9	7	8	11	8
Monetary (money supply targets)	2	2	2	2	2	0	1	1	3	2	4	3
III. Switching policies	3	2	4	5	2	2	1	2	3	4	5	5
Exchange rate	2	2	2	2	1	0	1	2	2	2	2	3
Wage	2	0	3	3	1	2	0	1	1	3	3	2
Total [e]	100	100	100	100	100	100	100	100	100	100	100	100

a. HIC = highly-indebted countries; SSA = Sub-Saharan Africa; SAL = structural adjustment loan; SECAL = sectoral adjustment loan; EIAL = early-intensive adjustment lending; and OAL = other adjustment lending.

b. Based on a subset of 10 hybrid SECALs (hybrid means part of the financing is for general balance-of-payments support and part is for investment in the sector).

c. See table 2–1. Years refer to fiscal year of Board approval.

d. All actions in all countries, including conditions in loan agreements.

e. Total includes more than the itemized subcategories.

Source: Based on an analysis of 183 SALs and SECALs to 61 developing countries. A total of 7,723 actions were considered in all.

The Bank and the Fund have usually arrived at some division of labor in the focus of their conditionalities. The Fund concentrates on short-term macroeconomic stabilization, the Bank on structural reforms to consolidate the stabilization and lay the foundations for sustainable growth. For instance, most issues relating to exchange rate and monetary policies are left to Fund conditionality when a Fund agreement is in place. The Bank's adjustment loans are less likely to have conditions in these areas when the Fund has a concurrent agreement with the country. Where there is no concurrent Fund agreement (39 out of 180 cases), the Bank's loans have usually addressed more narrowly defined areas of sectoral policy.

The Bank's management has long been concerned that the conditions in adjustment loans call for reforms in too many unrelated areas. The first Report on Adjustment Lending (RAL-1) (World Bank 1988) recommended against this pattern. Despite this concern, the statistics do not show an improvement in the focus of conditionalities. As table 5–2 shows, the spread of conditionality across sectoral categories was as high in the late 1980s as it was earlier.

Building on the lessons from experience, the Bank has encouraged and supported programs that take vital cross-sectional linkages into account. For instance, agricultural pricing reforms may require complementary reforms in the food processing and distribution industries, financial sector reforms may require fiscal reforms, and trade reforms may require complementary reforms of domestic industrial policy. A study of adjustment loans to the industry sector reveals this pattern (see the appendix).

The typical adjustment loan is disbursed in two tranches, with some of the conditions required for effectiveness of the first tranche, some for the second tranche, and others (special covenants) required by a specific date or sometime

Table 5–2. Content of Lending Operations, FY1979–89
(percent)

| | Share of loans with loan agreement conditions in various policy areas [a] | | | | | | EIAL countries | | | OAL countries | | Share of loans with actions in various policy areas [b] |
	All countries (183)	SSA (84)	HICs (64)	SALs (73)	SECALs (110)	Hybrid (10)	1979–85 (55)	1986–88 (49)	1989 (15)	1979–85 (9)	1986–89 (55)	
I. Supply-side, growth-oriented policies												
Trade	58	58	67	64	55	30	60	69	33	56	55	79
Sectoral												
Industry	22	30	16	25	20	10	24	20	27	22	20	44
Energy	15	12	14	21	11	30	15	14	7	22	16	27
Agriculture	45	62	33	56	37	30	44	35	27	89	53	62
Financial sector	31	26	31	40	25	20	16	35	27	44	40	51
Rationalization of gov't finance & administration	51	57	50	71	38	10	51	53	40	44	55	72
Public enterprise reforms	44	58	34	49	40	40	31	49	33	33	56	65
Social policy reforms	11	13	9	11	11	10	4	20	0	22	11	24
Other	28	42	17	33	25	10	7	27	20	33	51	49
II. Absorption reduction policies												
Fiscal	51	69	41	78	34	30	47	51	53	33	58	67
Monetary (money supply targets)	16	14	13	14	16	10	7	16	13	11	24	42
III. Switching policies												
Exchange rate	16	18	20	22	13	0	9	18	20	11	22	45
Wage	13	23	5	25	6	20	4	8	7	11	29	22

a. The numbers in parentheses are the total number of loans. HIC = highly-indebted countries; SSA = Sub-Saharan Africa; SAL = structural adjustment loan; SECAL = sectoral adjustment loan; EIAL = early-intensive adjustment lending; and OAL = other adjustment lending.
b. All countries. All conditions called for in all loan agreements or other actions called for in all Presidents' Reports.
Source: Based on an analysis of 183 SALs and SECALs to 61 developing countries.

during the life of the loan. When not all the conditions can be satisfactorily implemented as originally written, management either cancels the loan or recommends changes in light of the new circumstances and brings the matter to the Board. Only three loans have been totally canceled, and two others had half of their commitments canceled. As experience has demonstrated the importance of credible reforms to the economic recovery of adjusting countries, the Bank has increased its insistence on program implementation.

The pattern of implementation of loan conditions was analyzed in a sample that covered a majority of the loans with tranche releases prior to the end of fiscal year 1989.[3] Based primarily on the information on releases of tranches, with supplemental information from the reports on loan supervision and discussions with operational staff, the implementation of each condition was classified as none, partial, substantial, full, or more than full.[4] Because a statistical analysis cannot capture all the nuances of judgment necessary to evaluate program implementation, the results need cautious interpretation.[5] Nevertheless, the statistics reveal some trends in implementation and some factors that influence implementation.

Of the conditions in the legal agreements for the adjustment programs in the sample, which covered the entire decade of the 1980s, the overwhelming majority—84 percent—were implemented at least substantially by the time the final tranche was released, and 66 percent were implemented fully or more than fully (table 5–3). In the case of the five or six most critical actions in the program (coded on the basis of the President's Reports [see notes to table 5–4]), the rates of implementation were as good on average as with all the conditions in the legal agreements. The legal agreements, which are prepared on the basis of the recommendations in the President's Reports, include on average only a third of the expected actions in the corresponding President's Reports. Most of the other, less critical actions were also implemented substantially or fully.

Some of the obstacles to implementation, such as changes in world interest rates and the terms of trade, were beyond the control of the countries. Loans during the 1980s to countries with stable or improving external circumstances during the loan period had higher average rates of implementation than loans going to countries experiencing major negative shocks.[6]

Table 5–3. Implementation of Conditions by Policy Area, FY1979–89

(average percent at final tranche release)

	In all loan agreements [a]		Loan type [b]				Critical actions [c]	
	Fully implemented	At least substantially implemented	SALs at least substantially implemented	SECALs at least substantially implemented	HICs at least substantially implemented	SSA at least substantially implemented	Fully implemented	At least substantially implemented
I. Supply-side, growth-oriented policies								
Trade	62	85	79	88	87	84	56	82
Sectoral								
Industry	72	92	90	92	100*	96	53	65
Energy	69	80	70	84	79	67	72	80
Agriculture	62	81	86	80	88	75	49	74
Financial sector	73	89	94	83	97	80	79	92
Rationalization of gov't finance & admin.	63	81	79	83	85	85	54	68
Public enterprise reforms	66	80	77	78	90	71	67	77
Social policy reforms	59	91	67	92	93	75	55	82
II. Absorption reduction policies								
Fiscal	74	82	81	85	93	84	72	89
Monetary (money supply targets)	67	83	0*	91	100*	50*	61	89
III. Switching policies								
Exchange rate	75	85	78	91	80	91	71	81
Wage	45	91	89	100	33	100	50*	50*
Total								
Loan agreement conditions [d]	66	84	83	84	89	80	67	83
All conditions or actions [e]	57	77	73	80	82	75	60	79

Note: * Less than five observations for these cells.

a. The data on implementation indicate the extent to which a condition or action was fulfilled at final tranche release. A total of 1,015 legal conditions were graded for implementation.

b. HIC = highly-indebted countries; SSA = Sub-Saharan Africa; SAL = structural adjustment loan; SECAL = sectoral adjustment loan; EIAL = early-intensive adjustment lending; and OAL = other adjustment lending.

c. Critical actions are so identified because Bank staff designing the operation put particular emphasis on them and because they were expected to make a significant contribution to adjustment in a short time. A total of 494 actions were coded as critical, of which 303 appeared as conditions in the loan agreements.

d. The rate of implementation for the items that appear in the loan agreement.

e. Average implementation of actions that appear in the President's Report or conditions in the loan agreement. A total of 2,231 actions were graded on implementation.

Source: Based on an analysis of 97 SALs and SECALs to 32 developing countries. The sources of information on implementation were mainly supervision reports, tranche release documents and, where available, Project Completion Reports and Program Performance Audit Reports.

The rates of implementation rose over the course of the 1980s, with those for loans made since 1985 higher on average than was the case with those made earlier (table 5–4). The increase in the average rate of implementation of conditions under loans made to the early-intensive adjustment lending (EIAL) countries contributed to the overall rise.[7] There was an even bigger change with the loans to non-EIAL countries: before 1986 the rates of implementation for those loans were below average, whereas after 1986 they were higher than the average for the loans to EIAL countries (the non-EIAL loans made after 1986 mostly went to a different set of countries than before 1986). In the case of those loans whose final tranche was released in fiscal year 1989, 99 percent of the conditions had been implemented at least substantially, 80 percent fully. When the Morocco Public Enterprise Reform Loan is excluded, some of whose conditions the Board waived in fiscal year 1989 (the only such instance in the sample), the share of conditions fully implemented rises from 80 percent to 88 percent.

Although cancellation of loans for non-fulfillment of conditions has been rare—only Panama SAL II and Argen-

Table 5–4. Implementation of Conditions by Type of Country and Condition, FY 1979–89

(average percent at final tranche release)

Country groups and loan types [a]	All conditions or actions [b]		Loan agreements [c]		Precise [d]		Precise and legal [e]		Actions only in President's Reports [f]	
	Fully implemented	At least substantially implemented	Fully implemented	At least substantially implemented	Fully implemented	At least substantially implemented	Fully implemented	At least substantially implemented	Fully implemented	At least substantially implemented
All	57	77	66	84	62	78	71	86	49	72
HICs	61	82	72	89	71	87	78	93	50	74
SSA	55	75	60	80	56	71	66	82	50	70
SALs	53	73	65	83	56	74	73	87	47	69
SECALs	60	80	66	84	67	82	70	86	53	76
IDA credits	57	77	70	86	65	80	75	88	47	71
IBRD loans	57	77	59	80	56	75	62	83	55	73
EIAL countries										
FY79–85	53	71	63	80	60	75	71	85	47	66
FY86–88	60	82	66	86	62	79	69	85	54	78
OAL countries										
FY79–85	33	67	35	74	43	83	46	92	30	59
FY86–88	70	94	86	93	83	93	93	97	51	95

a. HIC = highly-indebted countries; SSA = Sub-Saharan Africa; SAL = structural adjustment loan; SECAL = sectoral adjustment loan; EIAL = early-intensive adjustment lending; and OAL = other adjustment lending.

b. All conditions called for in the loan agreements or other actions called for in the President's Reports, except prior actions. Prior actions are not included because they are said to have been fulfilled "prior" to negotiation.

c. All conditions in the loan agreement.

d. Precise conditions or actions are specific and usually quantifiable.

e. Precise and legal conditions are those that appear in the loan agreement and are specific in nature.

f. Actions that appear only in the President's Report (excluding prior actions).

Source: Based on an analysis of 97 loans to 32 developing countries.

tina Banking Sector Loan were canceled—release of tranches has often been held up because of delays in meeting conditions. Typically poor implementation has resulted in the country not getting another loan, at least not until there has been a clear change in attitude toward adjustment (Bolivia being an example). Problems with implementation was the reason that most of the countries with one or two adjustment operations in the early 1980s did not receive other such loans subsequently.[8]

Macroeconomic stability was associated with improved implementation; presumably they reinforced each other. Countries with low average annual rates of inflation (less than 10 percent in the four quarters after effectiveness) implemented 93 percent of conditions at least substantially (averaging structural adjustment loans [SALs] and sectoral adjustment loans [SECALs]), whereas the implementation rate in countries with moderate rates of inflation (10–20 percent) was 79 percent and in high-inflation countries (20–400 percent) only 74 percent (table 5–5). Rising rates of inflation were also associated with lower rates of implementation. As expected, policies to reduce the budget deficit were poorly implemented in inflationary economies. Inflation also reduced the chances of reforming price and exchange rate policies: in high-inflation countries less than half the exchange rate conditions were fully implemented.

Policy Reform under Adjustment Programs

All SALs and most SECALs call for policy reforms in more than one area. The issues in those policy areas (macroeconomic, government finances and administration, trade, agriculture, industry, environment, financial and public enterprise) are discussed below.

Macroeconomic Policy

The relation between structural adjustment and macroeconomic stability has depended on the situation of the country. In countries starting with acute macroeconomic imbalances, successful adjustment loans have focused on supporting the structural measures necessary to restore long-run macroeconomic balance, such as reform of taxes, public expenditures and public enterprises.[9] The success of sectoral reform has depended on the maintenance of a supportive and stable macroeconomic environment—competitive and stable real exchange rates, low and predictable inflation, domestic interest rates that are competitive with international interest rates, and a sustainable current account deficit. In the past, an unstable macroeconomic situation led a number of countries that had initiated well-designed sectoral reform programs in areas such as trade and the financial sector to

Table 5–5. The Macroeconomic Environment and Implementation, FY1979–89

| Average rate of inflation [a] (percent) | Loan type [b] | Number | Implementation of conditionality [c] (percent) | | Number with concurrent IMF programs at effectiveness [d] | Number with concurrent IMF programs at least 8 of first 12 months |
			Fully implemented	At least substantially implemented		
Low						
-10 to 10	SECAL	27	75	92	20	20
	SAL	22	72	95	21	15
Moderate						
10 to 20	SECAL	12	61	93	7	7
	SAL	15	57	73	12	12
High						
20 to 50	SECAL	24	58	76	17	16
	SAL	10	59	81	10	8
50 to 400	SECAL	18	53	78	12	9
	SAL	7	52	66	5	6

a. The rate of inflation is based on the average annual percentage change in the consumer price index for the four-quarter period beginning the quarter of loan effectiveness.

b. HIC = highly-indebted countries; SSA = Sub-Saharan Africa; SAL = structural adjustment loan; SECAL = sectoral adjustment loan; EIAL = early-intensive adjustment lending; and OAL = other adjustment lending.

c. The rate of implementation is based on the average share of conditions implemented per loan. In this regard only conditions listed in the loan agreement were considered. A total of 53 SECALs and 35 SALs were graded on implementation.

d. Includes stand-by arrangements, extended fund facilities, structural adjustment facilities and enhanced structural adjustment facilities.

Source: Based on an analysis of 135 SALs and SECALs to 52 developing countries. The data on inflation are based on quarterly data from the International Monetary Fund (various issues).

abandon or reverse them. In this regard, it is noteworthy that half or more of the adjustment loan agreements to all categories of countries, except one, contained conditions involving fiscal reforms aimed at reducing absorption (table 5–2). Such conditions were not prevalent with countries that received adjustment lending in the early 1980s and did not continue with adjustment. It seems likely weak fiscal adjustment to reduce macroeconomic imbalances contributed to the overall failure of adjustment in most of those countries.

Trade reforms are designed to shift resources from non-tradable and highly protected import-competing activities toward the production of exports and efficient import substitutes. Overvalued exchange rates undermine these efforts, however. The Southern Cone countries of Argentina, Chile and Uruguay faced this problem in the late 1970s, as do some African franc zone countries today. Overvalued or unpredictable real exchange rates are also common in countries with high and unpredictable inflation, such as Brazil and Yugoslavia. A major study of trade liberalization found that countries that carried out sustained trade reform usually had lower fiscal deficits than did those where liberalization failed. In some cases the countries carried out successful trade liberalization while stabilization was still underway—as in Chile in 1974–79 and Turkey in 1980–84. More typically, however, either severe macroeconomic instability contributed to the failure of liberalization (Argentina, Brazil and Sri Lanka in the 1960s and Peru, the Philippines, Portugal,

Turkey and Uruguay in the 1970s) or stability contributed to successful liberalization (Greece, Korea and Spain) (Papageorgiou, Choksi and Michaely 1990).

At least four of five legal agreements for SALs contained expenditure-reducing or switching policies to improve the macroeconomic balance (based on table 5–2). Measures that improve the administration and finances of the government and public enterprises also address the structural causes of macroeconomic imbalances. Over three-fourths of the SALs required fiscal reforms to reduce absorption, and over one-fifth required reform of the exchange rate, the key policy in facilitating switching. Producing and sustaining a real devaluation usually involves the coordination of fiscal, monetary and exchange rate policies. Exchange rate reform was more important in adjustment lending programs initiated after the mid-1980s, and exchange rate conditions were even more important to adjustment support than is indicated by their incidence in adjustment programs supported by the Bank, given that the concurrent IMF programs often dealt with exchange rate issues. Conditions involving the exchange rate were less common in loans to countries with concurrent Fund operations, presumably because the Fund conditionality was addressing some of the exchange-rate problems.

In countries where the real exchange rate greatly exceeded the level required by macroeconomic fundamentals and where rigidities impeded adjustment, reform of ex-

change rate policy was not simply a tool for managing the balance of payments: it was a fundamental instrument of structural adjustment.

Although it is not expected that macroeconomic policies would be the centerpiece of SECALs, complete success with sectoral reforms generally has required satisfactory macroeconomic management. In 1980–89, however, fewer than half the SECALs included at least one condition on the reduction of absorption. In a few countries such as Mexico and Pakistan in fiscal year 1989, the macroeconomic conditions called for under one adjustment loan were applicable to the other loans to the same country in the same year, but most SECALs were made at a time when there were no other adjustment loans to the country. In fiscal year 1989, 11 of the 21 SECALs going to the Board had no macroeconomic conditionality (Jaspersen and Shariff 1990); those 11 were concurrent with IMF arrangements, except for the private sector development loan to Indonesia, a country that had no major macroeconomic imbalances.

The Bank often evaluates the macroeconomic situation on the basis of specific indicators, such as the public sector deficit, rate of inflation, interest rate on bank deposits, real exchange rate and growth of exports. These indicators provide early warnings, clearly recognized by the Bank and the borrower, of whether the macroeconomic framework is getting out of control. While some of these indicators are not under the direct control of the government, their evolution is fundamental to the success of an adjustment program. The practice of using these indicators is becoming more prevalent.

Experience has led to greater attention to macroeconomic fundamentals. In some recent cases, the main reason that release of a second tranche was held up was a failure to implement the macroeconomic program (Zaire SAL and Turkey Financial Sector Adjustment Loan [FSAL] II). (The rest of the Zaire loan was disbursed when the macroeconomic situation improved.) Disbursement of two adjustment loans to Argentina—Banking Sector and Trade Policy—have been held up since early 1989 because of a total breakdown of the program, including the macroeconomic aspects. (The Banking Sector Loan was completely canceled.) In other cases where tranches were released, an evaluation of the key indicators would have revealed macroeconomic difficulties that ultimately did lead to a breakdown of the program. Sectoral reforms were then reversed or had reduced benefits.[10]

The Bank consults regularly with the IMF and in the past usually refrained from adjustment lending if a country with macroeconomic instability did not have a concurrent stabilization program supported by the IMF. Since March 1989 this practice has been universal. All adjustment lending countries except Colombia and Indonesia have had at least one program with the Fund since 1980. Nevertheless, the Bank has needed to make its own macroeconomic assessments because it often has had to make decisions on the release of tranches when an IMF agreement was not in place

and because of creditworthiness issues. Over 80 percent of the SALs and 60 percent of the SECALs were made to countries with an IMF agreement—a standby agreement, an extended Fund facility, a Structural Adjustment Facility (SAF) or an Extended Structural Adjustment Facility (ESAF)—in place at the time of Board presentation[11] (table 5–6). (Annex table 5.5 in the second Report on Adjustment Lending [RAL-II] [World Bank 1990] lists bank adjustment loans and concurrent IMF agreements.) Even if an agreement with the Fund were in place at the time of Board presentation, or if the initial situation did not indicate the need for an IMF program, by the time the later tranches were to be released the macroeconomic situation may have deteriorated.[12] In one-sixth of the cases where a country had an IMF agreement in place at the time the adjustment loan was presented to the Board, the IMF agreement was canceled within a year of Bank program effectiveness, usually because of some deterioration in the policy reform. (Half of canceled IMF agreements have subsequently been renewed, usually with revisions.) The tradition of the Bank avoiding cross-conditionality means that, after approval of a loan by the Board, failure to meet Fund targets is not by itself grounds for holding up effectiveness and tranche releases of

Table 5–6. Fund Agreements, Inflation and Implementation of Bank Adjustment Loan Conditions, FY 1979–89

	Loan type [a]			
	SAL		SECAL	
Concurrent IMF agreements at Board presentation [b]	Yes	No	Yes	No
Number of loans	56	15	70	43
Fiscal year of Board date				
1979–84	27	2	17	5
1985–88	21	9	36	33
1989	8	4	17	5
Average rate of inflation [c] (%)	19	27	39	38
Implementation of conditionality [d] (%)				
Fully implemented	60	70	64	62
At least substantially implemented	79	100	84	84

a. SAL = structural adjustment loan; SECAL = sectoral adjustment loan.
b. Based on a sample of 184 SALs and SECALs approved by the Board through 1989. The numbers in each column refer to the set of loans indicated at the top of the column.
c. Based on the average annual percentage change in the consumer price index for the 12-month period beginning the month of loan effectiveness. Based on a sample of 135 loans for which data were available.
d. Based on the average share of conditions in the loan agreement that were implemented. In total, 36 SALs and 53 SECALs were graded on implementation (but only 2 SALs without IMF programs at the time of Board presentation were graded on implementation).
Source: Based on an analysis of 184 SALs and SECALs to 61 developing countries. Fund Program data are drawn from International Monetary Fund Annual Reports and International Monetary Fund Surveys. Inflation based on quarterly data is from International Monetary Fund (various issues).

a Bank loan. Therefore, with increasing frequency the loan agreements have contained a clear definition of expected progress on the macroeconomic program.

Government Finances and Administration

In addition to fiscal reforms aimed at reducing public deficits and restoring overall macroeconomic balance, which were mentioned earlier, Bank-supported adjustment programs have emphasized structural reforms aimed at strengthening public finances on a more permanent basis. The reallocation of public expenditures and the tax incidence have also been used as means to encourage private investment and overall growth. Public investment in complementary infrastructure as well as expenditures for maintenance have been vital in stimulating private investment. Almost three-fourths of the loan agreements for SALs and more than a third of those for SECALs required measures aimed at rationalizing government finances and administration (table 5–2).[13] Measures to rationalize government finances and administration are as prevalent in adjustment loan agreements as deficit-reducing measures are (tables 5–1 and 5–2).[14] Conditions for rationalizing the public sector were least prevalent in the other adjustment lending (OAL) countries that started adjustment lending in the early 1980s but did not continue with adjustment—the drop-outs—a point that offers evidence for the importance of strengthening the public sector for successful structural adjustment.

Measures to restructure the public sector include programs that target social spending, upgrade the quality of civil servants and contract with the private sector to provide public services.[15] These reforms have been beneficial when the reviews of public sector expenditures on which the reforms have been based have covered both current expenditures and investments. In countries with an overextended bureaucracy, reducing the number of civil servants has been a common condition of adjustment loans, especially in the SALs to African countries. Recent programs in Ghana, Kenya, Mexico and Uruguay increased the salaries of the top civil servants, with the expectation that those costs would be offset by the expected benefits of improved performance. In Ghana the government curbed spending on the civil service by creating a roster of civil servants to ensure that no phantom workers were on the payroll.

Many adjustment lending programs have attempted to improve tax policy. In some cases new taxes—such as the value-added tax in Turkey—have been instituted to replace more distortionary trade taxes or monetary financing. In Asia the Bank has supported many administrative reforms of the tax system, particularly the streamlining of customs administration procedures, revision of the tax codes and improved collection of excise taxes. Tax reform is one of the most universally important means under structural adjustment to increase public sector saving and reduce distortions.[16]

Improving the efficiency of taxation and reallocating government expenditure remain almost universally necessary components of adjustment programs. Reforming the decision-making institutions for fiscal policy is often necessary as well.

Trade Policy

Reform of trade policy, which often also involves tax reform, has been most important in countries with very distorted trade regimes and a pressing need to increase exports, especially of manufactured goods. The response of countries to reforms of trade policy have varied greatly. Poorer and less diversified economies, which often face institutional weaknesses and major impediments to factor mobility, have usually responded slowly to changes in the real exchange rate and rationalization of the tariff structure. Some countries reversed earlier trade liberalization when inappropriate macroeconomic policies or lack of adjustment in the face of an adverse shock led to a balance-of-payments crisis. Low rates of implementation of trade policy reform have been associated with negative terms of trade shocks.[17] Countries experiencing adverse terms of trade shocks have done poorly in implementing conditions involving reductions in tariffs and quantitative restrictions. Contingency financing and contingency macroeconomic policies to deal with external shocks should play a larger role in adjustment programs.

Trade policy reforms are especially important in the initial phase of adjustment. Usually these measures start with a reduction in or elimination of the quantitative restrictions on imports, then move on to a reduction in the dispersion of the tariffs and finally reduce the average level of the tariffs, with faster movement on those imports that do not compete with domestic production. Where tariffs were lowered first, as in Tunisia, it has been much harder to phase out the quantitative restrictions.

The majority of loans to all categories of countries have included conditions involving the reform of trade policy (table 5–2); these conditions were especially prevalent in the pre-1986 loans to the EIAL countries (tables 5–1 and 5–2). Recent loans to the EIAL countries have shown decreased emphasis on trade policy, presumably because those economies have already removed the largest distortions of trade.[18]

Efforts to strengthen the institutional base for exports have often taken more time than originally estimated and, in some cases, have conflicted with other objectives of the adjustment program. For example, duty-drawback systems for exporters have been difficult to establish in countries with fiscal stringency and low institutional capacity, although the systems, if instituted, have usually resulted in enough trade growth in the long run to increase tax revenues. Vested interests, sometimes within the government, have often stymied efforts to reduce the protection for highly protected import-competing industries. For example, trade

reform in Argentina has seldom dared attack the high-cost steel produced by a plant the armed forces own. In Colombia, vigorous opposition by the government agency holding shares in an automobile assembly firm and by the head of a trade regulatory agency with ties to the firm defeated a proposal to reduce the firm's protection. The bureaucracy that administers trade restrictions may resist reform because it also derives rents and power (Hutcheson 1990). Nevertheless, in the countries with active trade reforms, about 85 percent of the trade policy conditions were implemented at least substantially (table 5–3).

Successful programs of trade reform have had to proceed rapidly enough to develop momentum and credibility without being so sudden as to provoke a political backlash or generate budget deficits or current account deficits that would have led to a reversal of the reform, as happened in many Latin American countries. Reducing protection according to a pre-announced, credible schedule can enhance the supply response and counter the pressure for ad hoc reinstatement of protection that arises when firms are exposed to import competition. The experience of many countries shows that credibility and sustainability are enhanced if trade liberalization begins with a bold move that signals the government's seriousness. Often the most effective signal has been a dramatic institutional change, such as Turkey's elimination of the quantitative restrictions, Venezuela's elimination of the agency in charge of allocating foreign exchange, Korea's move from positive to negative lists for import restrictions, and Chile's elimination of quantitative restrictions and drastic reduction in the highest tariff rates. Although these measures may have had only a small direct impact initially, they made further liberalization more automatic. In contrast, programs that have begun with weak steps have seldom been sustained (Papageorgiou, Choksi and Michaely 1990). Moreover, realizing the maximum gains in efficiency from trade liberalization has usually required complementary reforms in exchange rate, regulatory, public sector, labor market and financial sector policies.

Agricultural Policy

The large share of the agricultural sector in both gross domestic product (GDP) and employment, particularly in low-income countries, makes it an important target for efficiency-enhancing reforms. Attention to agriculture in the context of adjustment lending has, however, varied widely across countries. Agriculture reform was the dominant focus with the countries that started adjustment lending before 1986 but did not continue. Almost half of all the conditions in those loans concerned agriculture, and 9 out of 10 loan agreements had at least one agricultural condition (tables 5–1 and 5–2). These countries failed to continue with adjustment lending not because they tried to reform agriculture, but probably, as noted earlier, because they ignored the fiscal and macroeconomic

framework. In the EIAL countries, adjustment never focused exclusively on agriculture, and the importance of agricultural conditions declined over the 1980s. Countries that started with adjustment lending in the latter 1980s did not pay much attention to agriculture, at least as reflected in loan conditionality. Attention to agriculture seems to have waned in the EIAL and OAL countries since 1986 (tables 5–1 and 5–2). Despite the frequent need for further agricultural reform, rarely have there been follow-up agricultural sector adjustment loans (AgSECALs). Only Brazil, Mexico, Morocco, Somalia, Sudan and Tunisia have prepared second AgSECALs. Perhaps the pressure from the interest groups involved or the duration and intensity of the effort have discouraged the Bank and borrower governments from preparing AgSECALs. (Table 5–7 shows the distribution of adjustment loans pertaining to agriculture.)

While reforms of trade, exchange rate, and pricing policies have always been crucial means for enhancing efficiency in agriculture, recent adjustment loans in a few countries (such as Kenya, Mexico, Morocco and Tunisia) have integrated agricultural reforms with related reforms of food policy, internal and external regulations, and management of public investment. In Kenya, adjustment lending has supported an ongoing effort to strengthen the institutional capacity of the Ministry of Agriculture through improved budgeting, computerization of project monitoring and the introduction of a system of timely reporting of expenditures. To make irrigation projects self-financing, reduce wastage of water and avoid subsidizing the rich, loans often include conditions calling for cost recovery. In middle-income countries, where the agriculture sector has close links to agro-industry, adjustment programs have needed to assure that the prices and marketing systems for processed agricultural products are adjusted in step with reform of the agriculture sector itself.

In some countries where public agencies have monopolized the trade in agricultural commodities and the distribution of inputs, Bank-supported programs have involved ma-

Table 5–7. Distribution of Agriculture Adjustment Loans by Country Category, FY1979–89

	Number of countries		
		OAL	
Number of agriculture adjustment loans	*EIAL*	*Early (1980–85)*	*Late (1985–89)*
0	13	4	9
1	8	4	6
2	4	1	1

a. Agriculture adjustment loans include AgSECALs, fertilizer adjustment loans, rural sector adjustment loans, etc. They also include hybrid loans, where part of the financing is for general balance-of-payments support and part is for investment in the sector.

Source: World Bank (1990, Annex Table 5–5).

jor steps toward decontrol of the agricultural markets. Jamaica divested some major commodity marketing boards of all non-marketing functions and promoted marketing of export crops by the private sector. Côte d'Ivoire reorganized the sugar marketing board and liquidated many of its direct refining operations. Nigeria abolished most marketing boards. It has been politically difficult for countries to make these reforms, but they have tended to last. Where countries have not been able to dismantle agencies quickly under their adjustment programs, they have used other mechanisms. For example, the approach Mexico used to eliminate a major parastatal monopoly over food imports and link domestic agricultural prices to international prices involved reducing the distortions sequentially so as to avoid arbitrariness and increase the likelihood of sustained reform.

Public investment in agricultural infrastructure—mainly roads, irrigation and flood control—can be vital in the transition from structural adjustment to sustained long-term growth (Binswanger 1990). However, in almost all developing countries the rate of such investment dropped markedly in the 1980s, and the capital stock has deteriorated. To some extent this trend may have been a rational response to the declining world terms of trade for agriculture, but it was also the result of budget and capital constraints. Despite a need to invest in and maintain agricultural infrastructure, the number of AgSECAL hybrids in Africa declined to two in fiscal year 1990.

It has proven helpful for countries to develop institutions for project evaluation, and this needs remains to be done in many Sub-Saharan and other small low-income countries. To realize economies of scale, the small countries in a region may need to set up a regional institution, as they did in Central America.

Structural adjustment lending to support agricultural policy has often worked well in the past and will remain important, especially for low-income countries. There have also been some serious failures with AgSECALs. To avoid repeating the mistakes, adjustment programs need to assure that agricultural sector reforms have a supporting environment, with measures to minimize macroeconomic instability and distortions in the sectors purchasing agricultural output.

Industry

Countries have often undertaken structural adjustment because the inefficiency of previous strategies to promote industrialization—import substitution and state enterprises—contributed to low growth and an inability to accommodate external shocks. Switching to a more export-oriented, market-directed strategy for industrialization has been an important part of the structural adjustment programs in many countries, including Bangladesh, Ghana, Turkey, Mexico, Tunisia, Mauritius and the Philippines. The emphasis in the

conditionality in loans involving the industrial sector has shifted from restructuring and incentives for direct investment toward pricing policy, entry barriers, the regulatory environment and technology policy. The scope of industrial sector loans has also been broadened to include the financial and general business environment, a reflection of an effort to increase the pace at which firms restructure and resume investment (see the appendix). In Africa, industry loans initially focused mostly on rehabilitating the export sectors and eliminating major price distortions through changes in the exchange rate and trade regimes. Some countries implemented these reforms quickly. Where the required institutions were weak, however, the economy's response was often disappointingly slow.

Adjustment programs in recent years have paid more attention to increasing the competition in the domestic and export markets as a way to raise productivity and make firms more cost-competitive (see the appendix). Mexico, for example, has increased the range of competition and clarified its laws on foreign investment; however, deregulation of prices has progressed slowly. In most countries with small domestic markets, as in Africa, import competition and freer access to imported inputs have allowed market forces to encourage efficiency and growth in industries with a comparative advantage.

Some adjustment programs, especially some of those in Africa being supported by SALs, have addressed policy on industrial labor relations. Hungary's Industry SECAL (1987) financed programs to retrain and redeploy laid-off workers and to improve unemployment compensation mechanisms. In other cases, particularly in Latin American countries but also in Tunisia and Bangladesh, the Bank has acquiesced in the desire of governments to avoid the politically sensitive issue of labor retrenchment.

Where entry regulations, investment and pricing controls cause major distortions, removing or reducing them should continue to be a high priority in adjustment lending. In other cases, the priority should go to reforming industrial and labor regulations.

Financial System

Successful structural adjustment requires a healthy financial system to help mobilize resources for investment in newly viable sectors. Usually, however, countries in need of adjustment have credit allocation systems that do not promote the profitability of the sector or address crippled financial institutions with many non-performing assets.

Financial sector adjustment is complex, and World Bank (and IMF) expertise potentially has a high pay-off in this area. Financial sector reform typically needs to ensure an orderly transition for banking systems burdened with non-performing loans (sometimes to public enterprises) and to rationalize and ultimately decontrol the rates for lending and

deposits. When financial institutions need recapitalization, it is important that prudential regulation and supervision systems first be established.

Financial reform has become an increasingly important component of adjustment lending operations (see tables 5.1 and 5.2). SALs and a variety of SECALs have supported reforms in the financial sector, and some recent loans have supported adjustment that concentrated on the financial sector. Prior to fiscal year 1988, the Bank made only three FSALs, but in the next two fiscal years it made 10.

Conditions in SALs and non-financial SECALs related to financial sector reform usually touch only on the most obvious and easily corrected distortions—relaxation of the ceilings on interest rates and reduction of the reserve requirements. Lowering the quasi-fiscal deficit of the financial public sector and reducing the politically directed allocation of credit are often vital for fiscal stabilization and the initiation of structural reform. FSALs take a more comprehensive approach, including restructuring, strengthening of portfolios, regulation and supervision, and sometimes development of new instruments for the capital markets.

The closing or restructuring of major banks requires a pragmatic approach that recognizes the explicit and implicit need to guarantee deposits because of the way individual banks reflect the soundness of the whole financial system. When insolvent institutions are allowed to stay open as a result of government-guaranteed deposits, they have an incentive to roll bad loans over and to make risky new loans. In the process, they push interest rates up, a situation that affects other financial institutions and the whole economy. Consequently, the budgetary cost of restoring the banking system continues to grow over time, often very rapidly. The need for quick action must be balanced, however, against the risk of causing a financial panic by moving before the mechanisms are in place to back up fundamentally sound banks. By downsizing the ailing institutions in a series of steps, the government may be able to limit the cost of the transition and avoid the upheaval of bank failures.

Institutional reforms in the financial sector are essential in most adjusting countries. In Mexico, although the government retains the banks it nationalized in 1982, the 1989 FSAL eliminates the restrictions on entry into domestic banking and encourages competition in the financial sector. The 1989 FSAL in Kenya merges 10 weak finance companies into a single institution that may eventually be financially viable. Jamaica's 1987 SAL and Kenya and Pakistan's 1989 FSALs aim at developing the capital markets; the 1989 FSALs in Mexico and the Philippines address the need to restructure the development finance institutions (DFIs). The Philippine FSAL provided seed funding for the Development Bank of the Philippines to reduce retail lending and shift to wholesale long-term lending.

The Bank has felt a special responsibility for the fate of DFIs, since it often encouraged their establishment as a way of directing subsidized credit to protected sectors. These institutions often are not financially viable in a post-adjustment economy and need to be diversified or dissolved in orderly fashion.

Although successful financial reform requires an appropriate macroeconomic policy framework, FSALs have generally had weaker macroeconomic conditionality than the SALs have had. In any event, if a country has major macroeconomic problems, it is better to address them first with a SAL or a SECAL whose conditionality focuses on the structural causes of the imbalances—public expenditure, taxation and public enterprises—in tandem with an IMF agreement. Of course, correcting very high negative real interest rates on loans and deposits is always useful. When the FSAL is initiated in the follow-up phase, it needs sufficient macroeconomic conditionality to insure the maintenance of an appropriate macroeconomic framework. Some countries have negotiated FSALs without an adequate macroeconomic program in place—for instance, Turkey and Argentina (as it happened, the loan to Argentina was never made effective, and the second tranche of Turkey's FSAL II was delayed).

Financial reform is undermined when the government taxes financial intermediation with very high reserve requirements and other financially repressive measures. In Turkey, despite five SALs (several with financial sector conditionalities) and two FSALs (the only country to get a second), fiscal and quasi-fiscal requirements in the financial system still force banks to charge borrowers a high spread over the deposit rate. Financial reform is even more difficult if large budget deficits and high real interest rates have bankrupted the borrowing firms and produced insolvency throughout the financial system. When controls on interest rates are lifted, they move toward market-clearing levels that are often substantially higher, particularly when depositors expect a high rate of inflation or large devaluations of the exchange rate. Higher real interest rates by themselves present budgetary problems for governments with high domestic debts, such as Zambia, Mexico and Turkey experienced in the mid-1980s and Argentina and Brazil recently. The recent Philippine FSAL explicitly recognized this problem by deferring a requirement to reduce the taxes on financial intermediaries until other tax revenue had reached an adequate level.

Designers of financial sector reform need to be careful about sequencing and coordinating with macroeconomic stabilization. Some reforms, particularly of interest rate and credit allocation, are crucial for restoring macroeconomic stability in the early phases. These reforms often do not entail any cost to the government and, in fact, save money. Restructuring of banks is usually appropriate later, is often very expensive and requires policies to assure the continuation of macroeconomic stability.

Public Enterprises

Public enterprise reform has been a component in more than a third of recent adjustment loans (table 5–2). Structural adjustment of public enterprises generally starts with an evaluation of the activities and firms that should remain in the public sector and those that can be handled as well or better by the private sector and thus should be transferred there. When circumstances warrant continued public ownership, the reform measures seek to improve both efficiency and profitability. Strengthening management and allowing competition from private domestic and foreign firms usually help raise efficiency. For instance, the 1989 Public Enterprise Reform Loan to Mexico supports measures to compel state-owned firms to operate in a more competitive environment. Turkey's state-owned steel and textile firms faced increasing competition from the private sector during the 1980s. In some cases, however, state enterprises have reduced their losses by using their monopoly position to raise prices (e.g., electricity in Argentina).

State-owned enterprises are often inefficient. However, many firms that are not competitive internationally at an overvalued exchange rate do become competitive after a real devaluation. Because the output of state enterprises is usually the inputs for other firms, the prices of traded goods such as steel and textiles usually need to be adjusted to world levels (plus appropriate tariffs), and non-traded goods such as electricity need to be priced according to the marginal cost of efficient production. Where state-owned enterprises would lose money forever if their output were sold at world prices or the efficient marginal cost, there is a trade-off between getting the prices right and reducing the government's budget deficit. It is sometimes necessary during a transitional period to allow state-owned enterprises to sell at prices above desired levels, although competing imports should be allowed.

In economies with overextended public sectors, privatization has been an important strategy, as in the recent loans to Chile, Costa Rica, Mexico, Morocco, Pakistan, Ghana, Kenya, Malawi and Tunisia. Privatization (at a fair price to the government) requires a credible and sustainable policy environment. This requirement is true whether the prospective buyers are domestic or foreign firms. It has proven wise to give a government that is committed to reform some flexibility in the timing and identification of which enterprises to privatize so that it can take full advantage of market conditions. When countries have strict deadlines and lists of firms to privatize, potential buyers may collude to offer low prices. Privatization, especially of large enterprises, is a complex undertaking that often requires technical assistance.

Success with privatization often requires the success of other adjustment policies in reviving or creating a healthy private sector with vigorous growth. Private sector strength was important, for instance, to the progress of privatization

in Chile. Other countries, such as Ghana, have had difficulty dealing with financially ailing entities: shutdowns have meant increased unemployment and political opposition. Industries that have not been rehabilitated are not attractive to potential buyers, and underdeveloped domestic capital markets are frequently unable to provide funds for such enterprises. As a result, governments continue to run the enterprises at a loss.

Structural adjustment of public enterprises must start with an evaluation of the activities and firms that should remain in the public sector and those that can be done as well or better by the private sector and should be transferred there. For those remaining in the public sector, reforms need to restructure the incentives of managers to encourage efficiency.

Environment

Even though most adjustment programs have not specifically addressed environmental issues until recently, on balance most appear more likely to have helped than to have hurt the environment. Simply overcoming an immediate macroeconomic crisis increases the government's ability to plan ahead. Similarly, strengthening public sector finances and improving the efficiency and foresight of public sector institutions increase the likelihood of developing and implementing coherent environmental strategies. Without orderly adjustment, growing fiscal deficits, unsustainable external imbalances, mounting external debt, hyper-inflation and sharp declines in investment work their way through economic decline and increased poverty to shorten the planning horizon and worsen environmental degradation.

Many measures to reduce the distortion of prices for tradable goods relative to world prices probably have favorable effects on the environment. Raising the prices of gasoline, fertilizers, pesticides and other tradable inputs to world levels usually benefits the environment by reducing their use. Prices may be raised by reducing government subsidies or implementing a real devaluation. The change in relative prices also affects the composition of outputs, but here the impact of the changes on the environment is not obvious.

Adjustment lending in fiscal year 1989 revealed the potential for advancing toward environmental objectives, and recent adjustment programs have introduced regulations and incentives aimed specifically at protecting the environment. Of the 34 adjustment operations approved in fiscal year 1989, 7 contained conditions directly related to environmental management: 4 SALs (to the Gambia, Ghana, Guinea-Bissau and Laos), 2 AgSALs (to Pakistan and Burundi) and an energy sector loan (to Pakistan). These operations included the establishment of an environmental management system, elimination of subsidies for agricultural inputs that have an adverse effect on the environment, and introduction of incentives for conserving vulnerable natural resources.

The Ghana SAL in fiscal year 1989 supports a comprehensive environmental action plan for land management, control of soil degradation and erosion, development of water resources, conservation of forestry and wildlife, coastal zone management, control of mining and industrial pollution, and improved planning for human settlements. The Gambia SAL addresses some environmental issues, including salinity intrusions along the Gambia River, excessive exploitation of trees for fuelwood, overgrazing of pastures and inadequate groundwater management. The adjustment loans to Guinea-Bissau and Laos People's Democratic Republic emphasize conservation of forest resources through measures such as royalty payments on logging. In Guinea-Bissau the loan supports a plan for the use and replenishment of forest resources.

The agriculture SECALs to Pakistan and Burundi aimed to strengthen soil management and conservation, rehabilitation and maintenance of drainage and irrigation systems, and integrated pest management to reduce the use of agrochemicals that have contaminated the groundwater. The energy SECAL in Pakistan supports a monitorable environmental action plan that includes standards to protect against air and water pollution and establishes guidelines to assess the environmental impact of energy-producing activities. Adjustment lending programs are thus increasingly recognizing the importance of maintaining a sustainable natural resource balance as well as a sustainable external resource balance.

The environment is a new area of concern for adjustment lending, but one that will surely expand in the near future. The Bank has thus far chosen to address environmental problems not with specialized loans but rather through components of other sectoral lending. This course seems to be the wisest one.

Timing and Conditionality

Structural adjustment has usually taken longer than originally anticipated and indeed has become an integral part of the development strategy for many countries. When countries face a complex agenda of reforms, it is important to sequence them properly. The stabilization phase of the adjustment may take a few years, and introduction of fiscal reform is a key component of the stabilization program. Experience indicates that the subsequent phases are most effective if initiated after the stabilization is substantially underway. Thus, a country generally needs a series of operations. The early operations usually focus on structural reforms to achieve a sustainable reduction of the fiscal deficit and a competitive real exchange rate. The next round of reforms aims at reducing the other distortions hindering the efficient allocation of resources—typically these distortions involve domestic prices, interest rates and the trade regime. The later stages of adjustment focus on building institutions,

restoring investment and restructuring the financial system.

The reforms supported by a loan often require institutional development or other measures that take longer than the 6 to 18 months between the Board date and the scheduled release of the final tranche. When the disbursement schedule of a loan calls for the first tranche to be disbursed immediately and the second in six months, the conditions tied to release of the tranches can call for an action plan but sometimes cannot control whether it actually gets implemented. In countries with balance-of-payments problems that require structural reforms with long gestation periods—tax reform, financial and social sector reform and public enterprise restructuring and privatization—the Bank could usefully match the timing of its disbursements to the speed at which the reforms are introduced. Assurance of a continued flow of financial support increases the credibility and ultimate success of the reforms and brings the availability of financing more into line with the pace of implementing critical institutional reforms. Traditional quick-disbursing loans have been most appropriate for countries with balance-of-payments problems and major distortions that can be removed quickly, such as price subsidies, excessive government spending and import quotas.

Guided in part by experience, the Bank has changed the conditionality of adjustment lending, mainly by using conditions that are more specific to the achievement of each objective. This strategy makes sense because the rates of implementation are usually higher with more specific conditions. The average number of conditions in loan agreements has risen from about 10 before 1985 to 17 in recent years (based on table 5–8). The number of actions in the policy matrices of the President's Reports has risen similarly, with the average in fiscal year 1989 reaching 56 for the EIAL countries. Of the actions specified in fiscal years 1979–89, 18 percent pertained to actions initiated prior to appraisal, 34 percent were required by the loan agreement and 48 percent were listed only in the President's Reports as actions to be taken within the timeframe of the program.

More than a quarter of all policy actions in the President's Reports are precisely specified—usually with the targets quantified—whereas only one-tenth are both precise and in the loan agreement—an average of four per loan. IDA credits have about the same share of precise and legal conditions as IBRD loans (a tenth). With hybrid loans (hybrid means part of the financing is for general balance-of-payments support and part is for investment in the sector), on average half the actions in the President's Report are conditions in the loan agreements, and a third of those are precise (16 percent of the total). In addition to specifying more precisely the actions agreed to by the borrower, typical conditions in more recent loans have been more explicit as to whether the action was a condition for release of a tranche.

Serious controversy has surrounded the issue of lending to support prior actions where many but not all of the struc-

Table 5–8. Types of Conditions, FY1979–89

Loan types/ country groups [a]	Total number of conditions and other actions per loan [b]	Average share of total conditions and other actions (percent)				
		Loan agreement condition [c]	Precise actions [d]	Precise and legal conditions [e]	Prior actions [f]	Other actions in President's Reports [g]
All	42	34	27	10	18	48
HICs	39	36	27	11	20	43
SSA	44	36	28	10	14	50
SALs	50	24	27	7	19	56
SECALs	37	42	27	13	17	41
IDA credits	41	31	27	10	20	49
IBRD loans	43	37	27	10	16	48
Hybrid loans	46	49	26	16	9	42
EIAL countries						
FY79–85	30	31	24	9	16	54
FY86–88	39	43	29	12	17	40
FY89	56	29	23	7	22	49
OAL countries						
FY79–85	27	50	28	12	14	36
FY86–89	56	29	29	10	19	52

a. HIC = highly-indebted countries; SSA = Sub-Saharan Africa; SAL = structural adjustment loan; SECAL = sectoral adjustment loan; EIAL = early-intensive adjustment lending; and OAL = other adjustment lending.

b. The conditions in the loan agreements or other actions (including prior actions) called for in the President's Reports.

c. All conditions listed only in the loan agreements (including dated and undated covenants).

d. Precisely specified actions or conditions are those that are specific and usually quantifiable.

e. Precisely specified and legal conditions are those that appear in the loan agreements and are specific in nature.

f. Prior actions are those that a country has undertaken prior to a loan's negotiation, either on its own initiative or with support from an adjustment loan.

g. Actions listed only in the President's Report (excluding prior actions), to be implemented during the lifetime of the loan.

Source: Based on an analysis of 183 SALs and SECALs to 61 developing countries. A total of 7,723 actions were considered in all, of which 2,592 were legal conditions.

tural reforms were initiated before loan appraisal and sustaining the reforms is the chief goal of the program. The evidence is that adjustment performance in the long run has been remarkable where the Bank has supported adjustment measures undertaken before the loan approval was complete. In Indonesia, for example, the government independently encouraged private sector development and foreign direct investment as part of its adjustment strategy. It has restored the rate of growth of non-oil output to more than 5 percent annually, inflation is under 10 percent, and the deficit in the current account of the balance of payments has been reduced to less than 3 percent of GDP. When adjustment lending for prior actions was not allowed, governments on occasion delayed reforms so that the Bank would give them credit for the actions. Adjustment lending for prior actions has thus proven effective when the timing of the loan has been consistent with the financing needs of adjustment and when certain other conditions have been met:

- The government has a strong track record of reform.
- The borrowing government is prepared to take the necessary actions but finds it politically difficult to appear to

be acting on the basis of Bank dictates rather than its own initiative.

- The prior actions are part of an ongoing reform.

Rates of implementation have depended significantly on whether a policy action was specific or qualitative and whether it was a condition in the loan agreement (table 5–4). As noted, however, the rates of implementation need to be interpreted with care. Conditions that are precise or in the loan agreement have higher-than-average rates of implementation, and conditions that are both precise and in the loan agreement have even higher average rates (71 percent fully implemented and 88 percent at least substantially for the whole of the 1980s). The high rates of implementation for precise and legally binding conditions imply that legal agreements on critical policy actions should be made as specific and detailed as possible.[19] Greater detail may require a larger number of conditions. At the same time, general conditions that summarize the spirit of the adjustment effort are also important.

The incentive of tranche releases obviously motivates policy adjustment. The perceived benefits of adjustment and

the desire to have ongoing adjustment lending also motivate reform. Measures written into the loan agreement as conditions are selected with the implicit recognition that they do not constitute the whole program—and with the intention of focusing on the actions most central to the program's success and most indicative of the government's commitment to reform. As mentioned, the five or six actions the Bank considered most critical to achieving the objectives of the program had implementation rates that averaged as high as those for all conditions in the loan agreements.[20] In addition, countries carry out the majority of the actions in the President's Reports that are not in the loan agreements.[21] After release of the final tranche, countries usually sustained or increased the rate of fulfillment (table 5–9). Of the conditions that were not met at all during the loan, over a fourth were substantially or completely implemented later. Reversals occurred on less than a tenth of the conditions met during the loan, suggesting that most governments believed ex post that their adjustment programs were beneficial.

Political Economy of Adjustment

RAL-1 and many other analyses have stressed the importance of a government's commitment to the success of adjustment programs. This commitment can be enhanced,

sustained or undermined by the adjustment process itself. Although the Bank avoids interfering in politics, the cost of failure is too great for borrowing countries, as well as the Bank, to ignore the potential contribution of a better understanding of the political economy of adjustment. Further research in this area is needed.

The credibility of an adjustment program depends on the quality of the program itself and on the way the government identifies itself with the program and shows consistency between announced intentions and policy actions. The governments in Bolivia, Mexico, Korea, Ghana and Thailand made extensive efforts to publicize their commitments to reform, explaining the nature and timing of the reforms and why initially painful measures were necessary to obtain widespread benefits over the long run. It has also proved counterproductive to oversell the program and create unrealistic expectations or to blame austerity measures on the Bank or the Fund. It is particularly difficult to sustain reform measures if the government has openly disavowed the reform. Disavowal occurred in Zambia, where the reform was reversed in the face of political protest and unrest, even though the loan had been disbursed.[22]

When a country has a severe economic and balance-of-payments crisis and there is an imminent political crisis or upcoming election, the government is sometimes unwilling

Table 5–9. Implementation of Conditions Prior to and after Final Tranche Release, FY1979–89
(percentage of conditions)

	As of final tranche release		As of 1988–89 [a]	
	Fully implemented	At least substantially implemented	Fully implemented	At least substantially implemented
I. Supply-side, growth-oriented policies				
Trade	60	85	66	85
Sectoral				
Industry	62	86	52	76
Energy	73	82	77	86
Agriculture	62	84	69	87
Financial	71	90	75	93
Rationalization of government finance and administration	62	79	72	89
Public enterprise reforms	63	88	70	92
II. Absorption reduction policies				
Fiscal	74	85	74	89
III. Switching policies				
Exchange rate	68	89	58	90
Total				
Loan agreement conditions [b]	65	86	69	88
All conditions or actions	54	77	61	82

a. At least 18 months after final tranche release.
b. Based on conditions that appear only in the loan agreements. A total of 813 legal conditions could be considered.
Source: Based on an analysis of 57 SALs and SECALs to 23 developing countries. The same loans were graded on implementation at the final tranche release and in 1988 or 1989.

to adopt a sufficiently comprehensive adjustment. In such cases—including Peru recently and Poland and Ghana earlier in the 1980s—the Bank wisely refused to make exceptions in the design of programs. As painful as they may be, crises can increase the likelihood of reform by raising the perception within and outside the government that policies must change, by weakening anti-reform interest groups and by increasing the willingness to rely on technocrats (the case in Bolivia, Mexico, Nigeria and Ghana and perhaps to occur in Argentina and Peru) (Grindle 1991; Callaghy 1990).

The timing of reform measures can affect the political and economic viability of a program. Where new economic teams or governments have come to power and the policies of the previous team or government have been discredited, there is more leeway to undertake reform measures—witness Mexico under Presidents Miguel de la Madrid and Carlos Salinas and the stabilization of Bolivia's hyper-inflation under a new democratic government of President Victor Paz in 1985–86. Often the strongest political asset of new teams and governments is people's dissatisfaction with previous policies and their willingness to try something fresh (the honeymoon effect), as exemplified in Poland and Argentina (in the first months of the Menem administration). This effect is temporary, however, so that the key political task is to produce economic results before the honeymoon is over. In such political conditions, reforms should be introduced as quickly as is economically and technically feasible. As the temporary dislocations associated with adjustment and the previous crisis decrease, improvements will be attributed to the initial reforms. Where a government moves quickly, it also reduces the opportunity for the opposition to coalesce and increases the credibility of the reform.

Although it has generally been counterproductive for governments to yield to the pressure of interest groups for gradualism, some measures require time, such as the development of institutions and human capital. The lack of administrative capacity also limits the number of fronts on which reform can go forward. The Bank has thus urged governments to group reforms into packages that not only have an economic and administrative coherence but that also will produce identifiable benefits that will generate public support for broader reform. In Mexico, sectoral reforms supported by agricultural and industrial SECALs assisted the government in this way.

Sometimes the benefits of early success with part of the program can undermine the commitment of the government and populace to press forward with a thorough structural adjustment. For example, the initial benefits of stabilization in Argentina in 1985–86 induced some complacency that contributed to the failure to tackle the underlying budget deficits, which in the end undermined the program. Despite the rapid growth of Turkey's exports through the 1980s, it now faces problems with budget deficits and inflation. Grouping the reforms and publicizing the overall agenda from the

beginning can help with this dilemma, because the areas needing future reform are better identified in the minds of the populace and policy-makers.

Most successful political strategies for sustaining adjustment have involved building coalitions of the beneficiaries of adjustment, for example, exporters in Korea, Thailand, Zimbabwe and Chile. That is, in developing a program it is important to identify the groups that will benefit from adjustment. It has sometimes been politically useful to establish economic organizations of the beneficiaries of the reform, such as the exporters' associations in Korea and Chile, which also function as focal points for political support.

Although compensation to adversely affected groups usually requires taxing those who benefit from the reform, it has sometimes contributed to other valid objectives, such as targeting subsidies for the reduction of poverty. More serious opposition to reform, which needs to be defused, usually comes from the upper- and middle-income groups that were previously collecting high rents and that see themselves as permanent losers from the reform. Compensation measures such as severance pay (which requires workers to exit from adversely affected groups) and retraining subsidies (to prepare people to enter expanding sectors) have enhanced both economic efficiency and political viability. Recent programs in Bolivia, Hungary and Ghana have included such measures.

A technically well-designed program is a necessary but not sufficient condition for political sustainability. The government also needs to explain the program to the public. Particularly where new governments and economic teams have come to office, reforms should be introduced as quickly as is technically feasible—while public disillusionment with past policies is high and support for the new measures is strong. Adjustment programs should thus be designed and presented with an awareness of the importance for political sustainability of building a coalition of groups benefiting from and expanding as a result of the reform process. Protection of the poor also contributes to sustainability of reform and is an important objective in itself.

Conclusions

The experience of the World Bank in the 1980s has helped improve the design of adjustment programs, and countries have usually carried out the specific actions called for in their programs. Most of the conditions in the loan agreements in the sample analyzed were substantially or fully implemented, as originally written, by the time of release of the final tranche. The rates of implementation have improved over time and have been especially high since RAL-1 was written. Conditionality in the loan agreements is now specified more precisely, a measure that apparently has contributed to the rising rates of implementation. Many loans experienced delays in tranche release because of unforeseen

delays in implementing the programs. If it becomes clear that the loan conditions as originally stated cannot be met satisfactorily, Bank management recommends either cancellation of the loan or modification of the conditionality in light of the new information, and it brings the matter to the Board.

In policy areas that called for the reallocation and investment of resources, successful programs were those that established predictable incentives, including macroeconomic stability. In fiscal year 1989, conditions related to macroeconomic policy became more prevalent in loan agreements, usually in the form of references to the program in the Letter of Development Policy. For countries with acute macroeconomic problems, adjustment lending was used to support the structural reforms that addressed the fundamental causes of the problems. Other countries needed to maintain a macroeconomic framework conducive to the success of the sectoral reforms supported by adjustment lending. To make sure the borrowers and the Bank have a common understanding of what a supportive macroeconomic framework means, the typical conditionality in loan documents now establishes specific values to be achieved with key indicators of macroeconomic stability.

As the Bank's experience with adjustment lending evolved, the emphasis on reforming internal regulation, public enterprises and the financial sector increased. Reform of fiscal, trade, agricultural and industrial policies remained an important aspect of adjustment programs, although the emphasis on institutional development in these areas grew. Greater competition became a higher priority in industrial policy reform, despite the frequent opposition of interest groups. Financial sector reforms—including measures that can be implemented quickly, such as liberalizing interest rates, and longer term measures such as reorganizing the banking system—were important to restoring efficient investment and sustainable growth. Usually the quicker measures were appropriate at the beginning of adjustment; financial restructuring, on the other hand, rarely succeeded until the macroeconomic situation was stabilized. In countries where the public sector was overextended, adjustment programs involved restructuring that sector. Privatization was often the most appropriate way for the public sector to exit from activities that the private sector could do as well or better. At the same time, the public sector had to be strengthened in areas where it had a comparative advantage—such as providing infrastructure and educational services.

Although knowledge about the ideal sequencing of reforms is still imperfect, the Bank's experience supports several generalizations. High rates of inflation or other manifestations of severe macroeconomic imbalances need to be addressed at the beginning of a program. Adjustment lending to support any other reforms is most likely to be effective after the structural reforms aimed at reducing the extreme macroeconomic imbalances are underway. Removal of the price distortions and the impediments to factor mobility should proceed at roughly the same pace as trade is liberalized, so that the reform can increase output rather than prompt speculation and unemployment. Institution-building and regulatory reform, along with the development of human capital, generally take much longer.

Adjustment lending traditionally has been fast-disbursing, but the slow pace of implementation and slow response to some types of reform indicate that a slower rate of disbursement might be better. Slower disbursing instruments are usually more appropriate for institutional reforms in the public finance and financial sectors, as well as in the social sector. In keeping with this point, hybrid loans are growing in importance, partly in recognition of the benefits gained by assuring that investment policy complements the reform. They are also useful when the recovery of investment is central to obtaining a supply response—and when the expansion of investment will cause a temporary problem with the current account if consumption cannot be reduced.

For governments to sustain their commitment to reform, which RAL-1 emphasized as a precondition for successful adjustment, they need to maintain political support for the program. The design and presentation of a program were often important factors in enhancing political support. A major effort to convince the public of the program's virtues usually had important benefits. To take advantage of public dissatisfaction with the pre-reform crisis and to demonstrate commitment, countries in a crisis had more success when starting reforms with a new team and when they moved as quickly as was technically feasible. Compensation measures for groups unfairly injured by adjustment helped reduce economic inequality and softened the political opposition, but they worked best when designed to move labor and capital into sectors that were expanding with adjustment.

Appendix. Design of Adjustment Lending for Industry

This appendix[23] analyzes adjustment lending for the industrial sector, using the ALCID database as a point of departure.[24] Key issues and trends have been identified through interviews with operational managers involved with industry, trade and finance (ITF) and investigated through a survey of industrial project officers throughout the Bank. Country information was also taken from case studies of industrial adjustment programs, especially those in Hungary, Mexico, the Philippines and Turkey.

Issues of Program Design

Distribution of conditionality. While industrial sector policies constituted a relatively consistent proportion (about 6 percent) of adjustment programs before and after 1984, the closely related category of trade policies fell sharply from 27

percent to 16 percent of total conditions, and financial sector reform rose by a corresponding amount, from 8 percent to 17 percent (Appendix table 5–1–1). Within the industrial sector, the emphasis on conditionality shifted from restructuring and investment incentives toward pricing policy, entry barriers, the regulatory environment and technology policy. This reflects an effort to move closer to the causes of the slow rate of restructuring and investment responses at the firm level.

Phasing of reforms. Some broad conclusions emerge about the phasing of policy reforms, based on a range of experience. Their applicability depends heavily on the situation in a particular country, especially the extent of past distortions.

• Export incentives should be improved (for example, through devaluation, retention of foreign exchange, and access to imported inputs) prior to general liberalization of imports so that revenues from exports begin rising before the pent-up demand for imports is released.

• Broad transitional protection that will be phased out according to a pre-announced, credible schedule can help counter pressures for ad hoc reinstatement of protection that arises when firms are exposed to import competition too quickly.

Appendix Table 5–1–1. Distribution of Industry, Trade and Finance (ITF) Conditions for Major Adjusting Countries, FY1980–84 and FY1985–89
(percent)

Distribution	FY1980–84	FY1985–89	All loans
Share in all conditions			
Trade	27	16	19
Finance	8	17	15
Industry	6	6	6
Total, ITF	41	39	40
Share in industrial sector conditions			
Pricing	15	28	24
Restructuring	36	13	19
Investment	20	16	17
Regulation	7	14	13
Planning	7	9	9
Entry	4	6	6
Technology	3	6	5
Marketing	1	4	3
Other	6	3	3
Total	100	100	100

Note: The table is based on data for 26 countries selected for special attention in the second report on adjustment lending (World Bank 1990). *Source:* World Bank IENIN Adjustment Lending Conditionality and Implementation Database (ALCID).

• Financial sector reforms and credit availability should be considered early in adjustment programs. Potential exporters and high-growth industries cannot respond to improved incentives if past policy distortions have left them illiquid and credit for investments is unavailable.

• Early liberalization of domestic price ceilings is important so that viable firms can maintain their profitability in the face of cost increases resulting from devaluations and higher interest rates.

A typical pattern has been for industrial policy reforms to follow the earlier phases of stabilization and trade liberalization. In some cases, this sequence has not generated the expected supply response from industry because the earlier reforms weakened the profitability of industries without overcoming the financial, infrastructural and technical barriers that made it difficult for them to become more competitive. Incorporating conditionality to address constraints in the supply response is problematic because the time required to effect institutional changes often exceeds the duration of a single SECAL.

Macro and trade reforms. Bank staff view macro and trade policy reforms as likely to have a positive effect on industrial output and capacity utilization; most respondents see devaluation as positive. There is, however, some concern that stabilization policies and liberalization of competing imports can adversely affect industrial output and investment.

The 1982 IMF program in Hungary focused on reducing demand with minimum effect on consumption; it did not include devaluation, partly for fear that devaluation would generate inflation and be ineffective without a more market-based system. With no significant change in incentives and no supply-side measures, exports stagnated and foreign exchange shortages became critical, and the situation worsened for industry. Subsequent Bank lending supported a more comprehensive, systemic approach that included devaluation and incentives for greater competitiveness. Although consumption cuts held back industrial production because of weak demand in the domestic and ruble markets, in 1987–88 improved incentives eventually led to rapid growth of manufactured exports.

Devaluation has frequently stimulated a strong response from manufactured exports, even when some anti-export bias remains. Potential beneficiaries tend to be skeptical of export promotion schemes that depend on administrative actions, such as duty drawbacks and bonuses; such schemes can complement a more favorable exchange rate policy but cannot substitute for it. Tariff and tax reforms have reduced anti-export bias mainly by replacing quantitative restrictions with tariffs and, in some cases, lowering very high rates of effective protection for import substitutes (for example, Mexico and the Philippines).

Financial sector reforms. In many countries, the industrial sector is intimately intertwined with the banks. When industries run into financial difficulty (for example, because adjustment policies expose them to competition), banks extend additional credit to keep poorly performing loans afloat. Such situations threaten the financial soundness of the banking system and channel financial resources to the least efficient firms.

Recently, Bank staff have recognized the importance of restructuring a poorly performing financial sector before pumping more money into it for industrial recovery. Previously, financial reform in structural adjustment programs focused almost exclusively on achieving positive real interest rates. Where the rates of inflation were high, this focus sometimes aggravated the difficulty firms had in meeting their debt payments and discouraged borrowing for new investment (a situation that made banks all the more likely to favor quick-return commercial lending).

Toward more comprehensive approaches. Bank staff appear to be taking a more comprehensive approach to the programming of structural adjustment, covering an increasingly wide range of policy areas. The biggest increases in emphasis have been in areas that support a supply-side response: financial restructuring; regulatory policies; the business environment; and institutional strengthening.

Post-1986 Hungary provides one example of a comprehensive program design, as opposed to a sequenced approach. Hungary has introduced parallel measures in 11 policy areas aimed at stimulating competitiveness, greater mobility of resources and enterprise autonomy. It is paying particular attention to the financial system, infrastructure, technology updating and subsector restructuring. Progress in each area is reviewed as a basis for adjusting the program and moving on to the next steps. Nevertheless, structural changes in industry have taken a long time, despite the well-thought-out program and a high degree of government commitment.

The Bank still has work to do in developing practical, sound programs to support a supply response. The strengths of the Bank's economists are more on the demand side and the analysis of macroeconomic variables. The tendency on the supply side is to concentrate on activities that can readily be stated as loan conditions, such as revising the investment code, rather than on less clearly defined problems, such as the business environment. Better conceptual frameworks are needed to guide project designers toward the most effective types of reforms.

The area in which the most progress has been made toward a more satisfactory conceptual framework is *policies related to competition*. Early adjustment programs emphasized import liberalization and reduced tariff protection to force industries to become efficient, based on a trade-oriented analytical framework that revealed high effective protection as a cause of inefficient industrial investment. In

recent years, a broader perspective incorporating industrial organization theory has supported greater emphasis on competition in domestic and export markets as alternative ways of inducing firms to raise productivity and become more cost-competitive. In Mexico, for example, increasing the range of competition has been a theme of the Bank's program since 1987. In most African countries, however, import competition remains the most effective form of competition for industries with economies of scale because the domestic markets are small and exports account for a minuscule share of manufactured output.

The area most consistently ignored is *labor policy*. Perhaps partly for lack of the necessary expertise to carry out an effective dialogue, the Bank has often acquiesced in governments' consistent desire to avoid the politically sensitive issue of labor retrenchment (for example, Mexico). One exception is Ghana, which has carried out substantial layoffs to reduce the government budget and improve the cost performance of state enterprises. In some countries, high wage bills have been watered down in real terms by devaluations substantially in excess of wage increases.

The Bank's knowledge of *political economy issues* has been particularly weak, sometimes resulting in a structural adjustment program whose design is politically unacceptable or excessively risky. In the industrial sector, knowledge of the power structure and lobby groups is needed so that measures can be incorporated to deal with the inevitable pressures to restore protection. If the Bank is to help governments design more robust adjustment programs, consideration should perhaps be given to including analysis of political factors and vested interests.

Bank-Fund coordination. The design of IMF programs addresses fundamental macroeconomic imbalances, but usually without in-depth analysis of the intersectoral implications of macroeconomic reforms. Programs have succeeded best where the Bank and Fund have worked together to design a coordinated, comprehensive program. In Mexico, the Fund has done most of the macroeconomic work (since there has been no SAL), while the Bank has concentrated on careful preparation of SECALs, which have generally followed approval of Fund programs. Recent efforts in the Philippines have involved much closer coordination than before, with cross-participation in the preparation of programs (such as financial sector reform). Bank-Fund cooperation has been good in Tanzania, less so in Madagascar.

Economic and sector work (ESW). Bank staff view good ESW as essential to obtaining the in-depth understanding necessary for good project design and to stimulate dialogue with country officials, despite concern about the timeliness of the ESW and its operational relevance in individual cases. A majority of Bank staff surveyed see general sector reviews, analysis of the structure of protection, and action-

oriented study of the regulatory system as "very important."

Mexico is a case where extensive sector work has supported an effective dialogue with the government and aided in the design of specific program components. Sector work has expanded to cover regulatory policies, tax reform, infrastructural requirements, development of energy, and environmental issues. In the Philippines, the 1979 crisis stimulated Bank-government collaboration on ESW to review economic and industrial policies. The resulting government program provided a basis for the SALs. The adjustment program in turn generated more action-oriented sector work aimed at understanding supply-side constraints. Particular emphasis was placed on subsector studies to prepare for SECALs.

Lack of budgetary resources and sufficient well-qualified staff were cited as important constraints on the Bank's ability to carry out effective ESW. The quality of staff evidently varies widely among divisions. There was a relatively high proportion of responses at both the extremes of "very important" and "very unimportant" as a constraint. The quality of staff depends in large part on the number of people with hands-on country experience with reform programs.

Implementation

Industrial policy conditions have proven difficult to implement fully and to sustain over time. Only 47 percent of industry sector conditions were fully implemented during the loan period, rising only to 49 percent as of post-loan monitoring. In contrast, the overall average was 54 percent and rose to 61 percent (Appendix table 5–1–2). However, 79 percent achieved at least substantial implementation during the loan period, close to the overall average. There is some indication this situation has improved: the gap between "full" and "full/substantial" implementation for industry was narrower in the post-1984 sample than it was before. The reason may be that expectations and conditionality have become more realistic.

Government commitment. Implementation problems are most likely to arise when government officials have had minimal direct involvement in preparing the program and agree to conditions mainly because they need the financing. Côte d'Ivoire is one case where the preparation work was hasty and government commitment to implementation of a complex program weak. In Zambia the Bank (and Fund) dealt mainly with those leaders who favored a structural adjustment program; they made insufficient effort to understand and anticipate the political forces working against it. In Africa the Bank's role in pushing painful measures tends to be viewed suspiciously, and success in achieving effective implementation depends heavily on whether the govern-

Appendix Table 5–1–2. Implementation of Industrial Policies in Adjustment Loans
(percentage of conditions implemented)

Degree of implementation by policy area	During loan period			
	FY1980 to 1984	After FY1984	All loans	As of latest monitoring
Fully implemented				
Industry	50	57	47	49
Trade	44	62	52	63
Finance	56	61	58	64
All policies	49	62	54	61
Fully or substantially implemented				
Industry	84	80	79	80
Trade	66	84	77	77
Finance	81	86	84	85
All policies	69	83	77	82

Source: World Bank IENIN Adjustment Lending Conditionality and Implementation Database (ALCID).

ment retains the initiative as originator of the program (for example, in Ghana).

Good program design does not necessarily ensure effective implementation because there are too many ways to negate the effects of measures required as part of loan conditionality. Some countries agree on paper to reforms they have little intention of actually implementing, knowing the Bank is unlikely to stop disbursement. Bank staff unanimously recognize the importance of building government commitment during loan preparation and indicate that more attention is now being paid to this point than in the past. Nevertheless, formal assessment of the degree of government commitment to and involvement in an adjustment program occurs only indirectly in the context of appraising implementation capacity and risks. More explicit attention to this important determinant of program success might lead to the development of better indicators of commitment, a wider dialogue that includes those who might oppose the program, and the establishment of criteria for unacceptable political risks.

There are some good examples of structural adjustment programs that have been well and flexibly implemented because governments initiated them and the government and the Bank cooperated in designing them. In Mexico and Hungary, the governments saw industry as a potential engine of growth and were receptive to Bank partnership in developing an appropriate strategy, with different ministries and agencies involved in the design of a coherent program. In these cases the Bank has been viewed more as a partner in developing adjustment programs than as an outside agent imposing reforms.

Implementation capacity and problems. While most Bank staff surveyed believe that government commitment to struc-

tural adjustment programs is "very strong" in the countries they work with, few rank the government's ability to implement the program similarly. There is some concern that pressures to prepare loans quickly may lead to a glossing over of the weaknesses in implementation capacity or their being addressed through technical assistance programs that are unlikely to be completed in time to remedy the problems.

Studies may be a way either to delay implementation or to make it more effective. They are a convenient means for a government to request more information before coming to a decision it wishes to avoid, and for Bank staff to make some apparent progress in an area where the government is not ready to act. On the other hand, Bank staff sometimes put in measures with little understanding of the extent of preparation involved. For example, tariff reform often involves changing nomenclature, drafting and passing legislation, publishing new regulations and training customs officers—all of which may take much longer than estimated.

Impact

The objective of industrial adjustment is to achieve a more efficient structure of production. Although the initial impact of stabilization, trade liberalization and domestic deregulation measures on existing industries is often negative, those with the following characteristics are expected to benefit over the longer term: export potential; intensive use of locally available inputs (including labor); competitiveness, that is, a policy of minimizing costs and marketing; and optimum scale that is small, to the extent that previous policies restricted the access of firms to resources and markets and that new policies favor growth of agricultural income.

Analysis of aggregate data in connection with the first Report on Adjustment Lending (World Bank 1988) suggests that industry generally recovered relatively rapidly in the first three years of most structural adjustment programs because the additional resources relieved the constraint on imported inputs. This result says little, however, about whether adjustment policies actually induced structural change within the industrial sector. In the absence of consistent cross-country structural data, analysis of industrial adjustment must rely heavily on country case studies. In each country it is especially important to identify the institutional and infrastructural constraints that affect the speed with which resources shift from declining to more efficient industries.

Impact on output, exports and employment. Adjustment lending has generally been successful in helping industrial production and capacity utilization recover from the period of crisis immediately preceding structural adjustment, although this point is not true for all countries or for Africa as a whole. In many countries, industrial output had declined faster than GDP in the crisis period preceding adjustment,

and it is not surprising that it tended to exceed GDP growth in the recovery period. Growth rates in that period (data are available for 1984–86) do not, however, show a clear pattern relative to the period prior to the crisis (1978–81).

Some African countries also showed a turnaround in industrial growth, especially in manufactured exports, in the three years following adoption of an adjustment program. Much of the increase in exports represented the recovery of former markets (such as cocoa products from Côte d'Ivoire and Nigeria to Europe). In some cases it represented an advantage vis-a-vis neighboring countries gained through devaluation (for example, textiles from Ghana and Nigeria to neighbors in the CFA franc zone).

The figures on low industrial capacity utilization typically found prior to adjustment reflect the reduced foreign exchange for imported inputs. The increase in utilization and output is attributable in large part to the combination of more funding and liberalized access to foreign exchange under adjustment lending. In Zambia, liberalization of the allocation of foreign exchange enabled the private sector to expand rapidly by removing the public sector's privileged status. While capacity utilization rose from 38 percent to 54 percent in the private sector, it fell from 56 percent to 25 percent in five of the least efficient public enterprises. However, direct allocation of imports was subsequently restored when the adjustment program faltered.

The short-term impact has not always been positive. In the Philippines, manufacturing output growth fell by 23 percent from 1984 to 1986, having averaged 6 percent a year over 1972–82. With a continuing economic crisis and weak demand under the stabilization policies, the growth in manufacturing output did not recover until 1987. In Hungary, weak demand and competition from imports caused manufacturing value added to fall by 2 percent in 1988, after rising by 4 percent in 1987.

The evidence is not clear on whether industrial growth fares better over time following the policy reforms of an adjustment program as compared with the pre-crisis period. One positive example is Turkey, where manufacturing exports grew at 41 percent a year over 1980–85, increasing from 6 percent to 15 percent of GNP and from 34 percent to 75 percent of total export earnings. This phenomenal export response enabled manufacturing (at 8 percent a year) to lead GNP growth (4 percent).

Industrial employment has universally shown negligible growth during the recovery period. Given that most countries had prevented firms from laying off workers when utilization was down, most of the short-term growth has come from increased capacity utilization. In some cases (especially in Africa), lay-offs to reduce excessive costs in overstaffed state enterprises have tended to offset employment gains in the private sector.

Employment growth has been slow partly because industrial investment has been slow to recover. Gains in em-

ployment therefore will have to come mainly through structural shifts from more capital-intensive activities to more labor-intensive (often small-scale) ones. In Nigeria, the small-scale sector has been a source of employment recovery because it was able to shed labor when output declined.

Structural changes. Changes in the structure and efficiency of production within industry provide the most meaningful measure of whether industrial adjustment has occurred. Unfortunately, the evidence remains extremely sketchy and anecdotal, even at the level of country case studies. Manufactured exports show a consistently high supply response. Devaluation and trade liberalization, sometimes combined with reduced domestic absorption, have clearly shifted industrial production toward export markets. In both Nigeria and the Philippines, the tire industry responded to reduced protection and demand by restructuring production and seeking export markets, which had become more profitable through devaluation.

Investment. No systematic data exist for industrial investment. Anecdotal evidence suggests, however, that investment in industry has been very slow to respond under adjustment programs. A common explanation is that monetary policy has restricted the general availability of credit and that banks prefer to allocate scarce credit to short-term commercial borrowers. In some countries, the weakness of financial intermediation is a problem.

Evidence from Africa indicates that overall investment continued to decline during 1985–87, although at a much slower rate than that during 1982–84 in those countries with strong reform programs (World Bank and United Nations Development Programme 1989, p. 30). In some countries this decline was partly caused by persistent adverse external price movements. Investment grew slightly in the strongly adjusting countries that suffered no external shocks after initiating their reform programs.

Lessons from the 1980s

During the eighties, the pendulum in ITF lending swung sharply toward policy reform—with import liberalization a major focus of adjustment operations during the first half of the decade. At the same time, resources continued to move through distressed financial intermediaries and into loans with a narrow focus on physical rehabilitation and public enterprise reform. More recent policy operations have reflected a slightly better balance in the reforms over the three dimensions of competition policy: import protection; domestic regulation and incentives; and export rivalry—all in the context of macro policy measures. Country strategies are beginning to reflect the need to combine: (1) policy reforms to increase competition; (2) structural change in financial institutions and industrial enterprises; and (3) building tech-

nological and marketing capabilities and linkages—with a focus on strategies for industrial competitiveness.

Further improvements are needed in developing the combinations of policy and institutional reform measures that are important to achieving a flexible and competitive industrial base. Weaknesses still exist in designing the appropriate mix and phasing of reforms for the least developed countries, for centrally planned economies, for heavily indebted middle-income countries, and for next-in-line newly industrializing countries.

Experience demonstrates that Bank analysis and money cannot substitute for commitment and competence by government and institutional leaders. The most successful Bank-supported operations involve real partnerships, where the Bank's analysis and funds are used to achieve the government's policy, institutional and investment priorities. The failures have occurred when the Bank has tried to substitute optimism for the missing competence and commitment of its clients. It is clear that: (1) policy reform programs agreed to only on paper are easily avoided or reversed; (2) marginal policy or institutional changes combined with studies and technical assistance can be counterproductive if they substitute for fundamental changes, while increasing government debt; and (3) cases of bad banks becoming good ones are rare—particularly if they continue to receive funding.

The Bank needs to improve its analysis and operations by including an explicit recognition of politics and vested interests. Restructuring public enterprises, selecting the best financial intermediaries, and reforming trade and industrial policies involve relatively straightforward technical issues. What makes or breaks programs, however, is the decisiveness of governments—and their ability to build consensus and implement agreed-upon actions. The timing of policy-based operations needs to be sensitive to political cycles. Sector work, project preparation, Economic Development Institute seminars and technical assistance can be used to identify the real change agents, to build forums for private sector involvement in policy change, and to select the most strategic areas for influencing change.

Notes

1. On the economics of structural adjustment see Corbo and de Melo (1987); Fischer (1986); and chapter 2, "Adjustment Programs and Bank Support: Rationale and Main Results," by Vittorio Corbo and Stanley Fischer in this volume.

2. The first Report on Adjustment Lending (RAL-1) was based on an examination of 51 adjustment loans to 15 countries (World Bank 1988). The present chapter relies on a database on conditionality and implementation developed by the Industry Development Division with support from the Macroeconomic Adjustment and Growth Division. In the case of conditionality, the database contains information from 184 loans to 61 countries that were coded for the conditions specified in both the loan agreements and President's Reports. In the case of implementation, a

subset of 97 loans to 32 countries was also coded. Release of the final tranche of all these loans had taken place by the summer of 1989.

3. There was insufficient time to code all the loans for analysis, and the sample was therefore limited to loans to countries that had received at least three adjustment loans as of the end of fiscal year 1989.

4. The underlying data on implementation are drawn from the database coded by the Industry Development Division (IENIN), with support from the Macroeconomic and Growth Division (CECMG). Of the 184 loans in the sample, only 97 had been in place long enough to have any information on implementation. The sources of information on implementation were mainly reports on supervision, documentation on tranche releases, and, where available, Project Completion Reports (PCRs) and Program Performance Audit Reports. Although those managing and supervising the loans may well have had incentives to give adjusting countries the benefit of the doubt, the coders did not try to correct for this possible bias or make independent assessments. The fulfillment rate for quantified or otherwise unambiguous conditions was higher than that for more impressionistic conditions, where the supervisory missions had greater latitude for judgment. This finding suggests that the evaluations were not excessively biased on average. The rates of implementation shown in table 5-3 are about the same as those in the RAL-1.

5. While full implementation is a desirable objective at the time the loan is initiated, it may not remain desirable. Both economic and political circumstances can change unexpectedly and necessitate a shift in policy instruments.

6. Data that could be used to compare the total external shock with degree of implementation were available for 73 SALs and SECALs for a two-year period, beginning with the year of effectiveness (with shock measured as Vittorio Corbo and Patricio Rojas do in chapter 3, "World Bank-Supported Adjustment Programs: Country Performance and Effectiveness," this volume). Countries whose negative terms of trade and interest rate shocks exceeded 5 percent of GDP per year implemented only 74 percent of the conditions at least substantially, while in those with positive shocks that exceeded 5 percent of GDP the rate of implementation averaged 89 percent. Where there was little or no improvement in external conditions, implementation averaged 83 percent.

7. This increase took place even though the EIAL countries that did little or no borrowing after 1985 had above average implementation rates before 1986.

8. True for Burkina Faso, Guinea-Bissau, Guyana, Panama, Sierra Leone, Sudan, Uruguay, Yugoslavia and Zimbabwe.

9. For an elaboration of these issues, see the background paper by Jaspersen and Shariff (1990).

10. RAL-1 recommended as a precondition that "...there should be an understanding with the government on its overall structural adjustment program. This understanding would cover the short-term stabilization and longer-term development objectives, the macro and the micro policies, and the needed institutional changes." (World Bank 1988, p. 11.) Recent experience in Yugoslavia, Turkey, Brazil and Argentina indicate that sometimes the understanding on the macroeconomic aspects of the program was not explicit enough.

11. The share with IMF programs at the date of effectiveness rose to 87 percent for SALs and 66 percent for SECALs.

12. For instance, second tranches of seven SECALs and one SAL were released to seven countries even though the rate of inflation was over 100 percent annually during the first four quar-

ters after effectiveness—Argentina (Export Development Adjustment Loan, fiscal year 1987, Agriculture SECAL, fiscal year 1984, Agriculture SECAL, fiscal year 1986), Mexico (Trade SECAL, fiscal year 1987), Turkey (SAL, fiscal year 1980), and Uganda (Economic Recovery, fiscal year 1988). In the Argentine and Brazilian cases, as well as in several cases where the rate of inflation was 50-100 percent, the macroeconomic program went seriously off track in the medium term.

13. These measures do not even include fiscal measures aimed mainly at reducing the deficit.

14. Conditions aimed at rationalization were present in a larger share of loans than were conditions for reducing the deficit (table 5-2), although there were a larger number of individual conditions aimed at deficit reduction (table 5-1).

15. It may be more efficient to contract actual construction and maintenance out to the private sector.

16. The IMF's advice and technical assistance in the area of tax reform have often been an important input into programs supported by adjustment lending (World Bank 1991).

17. The terms of trade shock is calculated as the annual percentage change in the terms of trade, averaged over a two-year period beginning with the year of effectiveness. The terms of trade is calculated as the ratio of the average export and import indices. Countries experiencing negative terms of trade shocks (more than a 10 percent decline in the terms of trade) implemented less than half (48.9 percent) of the conditions fully. (The 57 SALs and SECALs for which data were available were divided into three groups based on whether they experienced negative, positive or roughly zero terms of trade shocks.)

18. See also Thomas, Matin and Nash (1990).

19. Analysis of a smaller number of loans for RAL-1 did not reveal this pattern.

20. The designation of a condition as critical was made by the coders for the IENIN Adjustment Lending Conditionality and Implementation Database (ALCID). Most but not all of the conditions coded as critical were in the loan agreements. Critical conditions may include measures such as changes in tariff rates and increases in taxes but not usually the preparation of studies.

21. Actions that are described as required in the President's Report but that do not appear in the loan agreement are effectively conditions for negotiation or Board presentation. Not surprisingly, their implementation rates are high: 71 percent of these conditions were fully implemented and 89 percent were at least substantially implemented.

22. Front-loading of conditions (requiring most of the policy actions before the money is even disbursed), as was done in one-tranche operations, can help with this problem, but only when it is technically feasible to implement the reforms quickly and when the fait accompli of reform results in political acceptance and ultimately support.

23. This appendix was written by William F. Steel, Deborah Bateman and John Wayem.

24. The ALCID database, maintained by the Industry Development Division, includes approximately 9,400 conditions contained in 212 official adjustment loans approved from FY1980 through FY1990.

References

Binswanger, Hans. 1990. "The Policy Response of Agriculture," 231–58. *Proceedings of the World Bank Annual Conference on Development Economics 1989* (supplement to the *World*

Bank Economic Review and the *World Bank Research Ob-server*). Washington, D.C.: World Bank.

Callaghy, Thomas M. 1990. "Lost Between State and Market: The Politics of Economic Adjustment in Ghana, Zambia, and Nigeria." In Joan Nelson (ed.), *Economic Crisis and Policy Choice: The Politics of Adjustment in Developing Countries.* Princeton, N.J.: Princeton University Press.

Corbo, Vittorio, and Jaime de Melo. 1987. "Lessons from the Southern Cone Policy Reforms." *World Bank Research Ob-server 2* (July):111–42.

Fischer, Stanley. 1986. "Issues in Medium-Term Macroeconomic Adjustment." *World Bank Research Observer* 1 (July):163–82.

Grindle, Merilee S. 1991. "The New Political Economy: Positive Economics and Negative Politics," 41–67. In Gerald M. Meier (ed.), *Politics and Policy Making in Developing Countries.* San Francisco, Calif.: ICS Press.

Hutcheson, Thomas L. 1990. "Political Economy of Trade Policy Reform." Mimeo. World Bank. Washington, D.C. February 16.

International Monetary Fund. Various issues. *International Financial Statistics.* Washington, D.C.: IMF.

Jaspersen, F., and Karim Shariff. 1990. "The Macroeconomic Underpinnings of Adjustment Lending." Policy, Research and External Affairs, Working Paper No. 511. World Bank. Washington, D.C.

Papageorgiou, D., A. M. Choksi and M. Michaely. 1990. *Liberalizing Foreign Trade in Developing Countries: The Lessons of Experience.* Washington, D.C.: World Bank.

Thomas, Vinod, Kazi Matin and John Nash. 1990. *Lessons in Trade Policy Reform.* Policy and Research (PPR) Series # 10. Washington, D.C.: World Bank.

World Bank. 1988. *Adjustment Lending: An Evaluation of Ten Years of Experience.* Policy and Research Series no. 1. Washington, D.C.: World Bank.

———. 1990. *Adjustment Lending: Policies for Sustainable Growth.* Policy and Research Series no. 14. Washington, D.C.: World Bank.

———. 1991. *Lessons of Tax Reform.* Washington, D.C.: World Bank.

World Bank and United Nations Development Programme. 1989. *Africa's Adjustment and Growth in the 1980s.* Washington, D.C.: World Bank.

Comments

Arnold C. Harberger

John Williamson is fond of talking about the Washington consensus; I like to think of it as an emerging professional consensus. Take a meeting such as this one and think about how divergent the views were on the same subject in, for example, 1972. By comparison, it is absolutely incredible to see how far we have moved, how high a level of professional consensus we have reached on most of these matters. I agree so much with the spirit in which this paper was written—it is precisely the spirit in which I would have written it—that I find it very hard to complain about anything. I would like to emphasize and applaud the attitude the authors have taken toward inflation. We have got to get away from thinking that the cost of inflation is some triangle under the demand curve for money. Instead we must recognize (and proclaim) that the fog of relative prices, into which inflation inevitably puts us, is the principal source of the ultimate costs of inflation. I am happy to see that the authors emphasize this view.

Another thing I very much like is the emphasis on taking advantage of crises. That strategy, I believe, is one of the true secrets of great finance ministers, great cabinet secretaries, great statesmen. The idea of taking advantage of crises is closely related to the old debate concerning a big push versus gradualism. What I want to emphasize here is that a big push does not occur as a result of coming out and proclaiming in advance that "we're going to have one." Most of the time a true big push will emerge in the wake of a major crisis. The important message is that governments have to be ready to take advantage of the crisis when it happens. In doing so they should recognize in advance that, precisely because of the crisis atmosphere, their actions will be limited in number and will have to be taken quickly. In a crisis atmosphere it is possible to do more than normally, but there are still limits. The true lesson is the need to move with all deliberate speed. That is to say, try to do the best all the time—when there is a crisis and when there is no crisis. However, a crisis offers more scope, permits more to be accomplished. Governments should thus be prepared to move rapidly to take advantage of a crisis, then and there. Put another way, policy should be constrained by true, not imagined, constraints. Governments need to be pushing at the real boundaries, not the ones that seem to be there.

Having applauded the paper in all sorts of dimensions, I turn to some comments on the general topic. For a long time I have characterized as utter nonsense the idea of the Bank being basically a lending institution. Anybody who thinks the Bank is really a lending institution had better go home and start thinking afresh. I calculate that if the entire gross lending of the Bank in one year had been given to India as a permanent addition to its capital stock, not as a loan, and if

India had invested it at a real rate of return of 20 percent, the funding would have added one point to India's growth rate for one year. That scenario involves giving away the whole budget of the Bank, with nothing ever coming back. Obviously, that sort of activity cannot be the mission of the hundreds of professionals who work at the Bank.

The Bank must recognize that ultimately its role is that of a teaching institution. It teaches developing countries lessons they have to learn about economic policy. In part it does so by training young people from developing countries in the Young Professionals Program. In part it does so through what people from developing countries learn when they occupy staff jobs. In part it does so through Bank missions going to developing countries and working with the ministers and their staffs and cadres. All of that work is extremely important.

In addition, there are new lessons coming out of the story—lessons that have particular meaning for adjustment lending and in general for what we used to call program lending. Back in the early days of the Bank, the concentration was on projects, with the insistence that they be very solid. When the Bank made an electric power loan, it would impose conditions on the structure of electricity rates as a quid pro quo for the loan. The country would borrow a hundred million dollars, and if it did everything right, it would receive a sort of steady flow of 20 percent per year coming back. This flow of cash would be more than sufficient to pay the debt service on the loan, so that the country could pay, say, 14 percent per year in interest in amortization and still end up with 6 percent of its own as a kind of profit from the overall operations of borrowing plus executing the project. That early Bank strategy was fine, especially so with respect to such things as electricity loans, because power projects bring benefits in the form of money. For electric power projects and other traditional types of Bank lending, the cash flow reflecting part of the project benefits came through to the relevant entity (i.e., the electricity company), which then paid the bill to the Bank. Now, the problem with a SAL or SECAL is that, for 100 million dollars, if it ends up producing an overall benefit of 20 percent per year of the investment, that benefit tends to be proliferated throughout the economy. It does not flow directly into the treasury. If it produces no more than a 20 percent rate of return in overall social benefits, it is unlikely the endogenous taxes that are generated will turn out to be greater than, say, 4 or 5 million dollars. However, the payments on the Bank loan might be 14 million. Thus, the country may have a SAL yielding 20 percent, but it still has to go out and impose new taxes on a lot of innocent people in order to collect 9 or 10 million dollars—the extra revenue it needs to pay its bill to the World Bank.

Now that is a problem. It forces us to think in terms of different scenarios. My scenario of a good SAL or SECAL is that a country borrows 100 million dollars, which is then applied so productively that it truly produces a social benefit of 60 million per year. That marginal productivity is tremendous for a loan. However, I feel sure those who argue for SALs and SECALs as triggers for major policy reforms definitely have in mind "marginal productivity" at least this high. In that case, the endogenous taxes might be 15 or 16 million, out of which the debt service of 14 million (in our example) can readily be paid.

A great and extremely useful task for the future with respect to both SALs and SECALs is for people to generate simulations in advance, in which they try to anticipate the results of each loan in terms of greater economic growth, sector growth, income growth, tax growth, etc. In making such a simulation, people should explicitly project the sources of the tax revenue with which they are going to pay the interest and amortization on the loan. That is, they should try to specify in advance where the money is coming from to pay the debt service on the loan. The key first question is whether the benefits that accrue directly to the treasury are big enough to pay the full debt service. If so, the loan is self-standing; it needs no outside support. However, if the benefits are widely distributed among the people, while the treasury only takes in a small increment of revenue, then new taxes are going to have to be levied on somebody to pay the debt service of this loan. In such a case attention should be paid to this problem in advance. Ideally, the new taxes, when necessary, should apply to the groups in society that mainly benefit from the SAL or SECAL loan. If not, innocent bystanders will end up having to pay the freight.

Right now, in the aftermath of the savings and loan crisis in the United States and of similar financial debacles in other parts of the world, the poor taxpayers are being asked almost everywhere to ante up to pay off depositors and other creditors of failed institutions. It may be true, at least in some cases, that the projects that some of these failed entities financed may have paid off in some broad social sense, but the idea of having to go to an innocent taxpaying public to get the money to pay the freight is something we should avoid.

SALs and SECALs must have a high level of productivity to be truly justified. Their rate of return in terms of added growth and added GDP should be high enough to generate for the treasury sufficient extra tax money to pay the bill. When that condition does not pertain, the recommendation is that the beneficiaries of these programs be identified and new and special taxes introduced to collect the money from them.

Gerlad K. Helleiner

The main subject matter of this paper is much narrower than its title leads one to expect. Rather than design and implementation, its contribution lies in the original data it presents on the range of topics covered in the conditioning of World Bank adjustment lending and the degree of borrower compliance with these conditions. As the authors say, these data are themselves of questionable quality; assessments of compliance with Bank conditions are inevitably subjective and probably biased upward. More important, the data tell us nothing about what policies worked. In place of such analyses the authors offer a variety of *obiter dicta* and anecdotes, drawing heavily upon other World Bank studies (including some of those in this volume), all of which are consistent with the "priors" we have come to expect from the Bank's analysts.

Although the primary data source would probably have permitted it, there are no data presented on such crucial design issues as the pace of policy changes, their packaging, sequencing, timing or sustained nature, or the relationship between such characteristics and compliance or "successful" adjustment. Nor can we discern from the paper's data any idea as to the depth of the policy changes grouped under its categories, although it clearly varied a lot and must have influenced "success." "Success" in this paper's account is purely the rate of implementation, that is, the degree to which the borrowers did what they said they were going to do. By and large, according to the data, most borrowers fulfilled their obligations in most policy areas.

The paper does not include comprehensive data on the frequency of loan cancellations, changes in conditions during the course of the loan agreement or failures to disburse the second tranche of an adjustment loan. The implication is that such events were rare—largely because compliance was so frequently judged to be "full," "substantial" or at least "partial." Yet threatening noises evidently are made to borrowing countries, not least (and increasingly) with reference to macroeconomic management which, we might think, should normally be the province of the IMF. It is interesting that in about 20 percent of the Bank's adjustment loans there was no concurrent IMF agreement. The World Bank evidently uses macroeconomic indicators (combining performance and policy) to govern the release of second tranches. Its indicators include the rate of price inflation, the interest rate, the public sector deficit, the real exchange rate and the rate of growth of exports. The weights assigned to these variables, which rather untidily combine elements of policy and exogenous influences upon performance, are unclear. (The IMF's targeting is rather more straightforward.) At one point the authors describe the real exchange rate as a "fundamental instrument of structural adjustment." The tables seem to imply, however, that inflation matters most. The evidence on the association of inflation with policy compliance is not as clear as the authors suggest: low inflation countries are more compliant than high inflation countries, but there is little difference between moderate (10–20 percent) and high (over 20 percent) inflation countries in this regard.

The authors report that countries with stable or improving external circumstances implemented their agreed-upon programs to a greater degree than did those experiencing negative shocks. Specifically, trade policy reforms are implemented less when there is adverse terms-of-trade experience. Contingency clauses relating to the impact of exogenous changes upon policy or performance targets would therefore seem to make sense. It would also seem to follow that the rate of implementation would be related to the adequacy of external funding. Neither of these points is made. Indeed, elsewhere in their account, the authors offer a contrary interpretation of the political economy of adjustment, which their data do not substantiate: that crises are conducive to policy reform, and good times may generate complacency.

In this paper's discussion of the design and implementation of adjustment programs, there is curiously little said about bargaining between the World Bank and its clients. That SALs are employed in some countries and SECALs in others is attributed to the greater "complexity" of the latter, rather than to their greater bargaining strength. The account is couched more in terms of a struggle between "truth" (possessed by the Bank) and "error" than, more realistically, as a bargain struck between lenders and borrowers wherein each has interests to pursue, and the latter have a wide variety of "initial conditions."

Particularly striking and surprising to this observer is the fact that the number of conditions attached to adjustment lending has been rising. Only 10 percent of these conditions (averaging four per loan), however, are stated in precise form and are actually conditions for loan disbursements.

Over 80 percent of the conditions are described as "supply-side" and, in the view of the World Bank and the authors, are "growth-oriented." They relate to "structural causes" of macroeconomic imbalance; allocative efficiency (never "x-efficiency"); institutional capacity, especially in the public sector; and the mobilization of savings and investment. The issues of poverty and distributional equity do not figure prominently, if at all, in the vigorously "productionist" conditions described here. The closest they come to the Bank's conditioning is the heading of "social policy reforms." The authors rather lamely note that distributional equity is "a valid objective" and indicate concern for the "unfairly" injured in adjustment programs; they do not, however, seem to

share the concern expressed by others over declining social expenditures by central governments or the Vittorio Corbo-Stanley Fischer call for increased targeting of the poor.

At the level of specific spheres or sectors within which policy conditions have been set by the Bank, some further comments are in order. In the sphere of government finance, why do the authors say nothing about the desirability of cutbacks in defense and security expenditures? (After all, they comment on the role of the Argentine armed forces, who owned a steel plant, in the making of that country's trade policy.) In connection with the discussion of trade policy reforms, why has there been no reference to the ambivalent results of the Bank's current research on the relationship between growth in total factor productivity and trade regimes? As far as agricultural policy reforms are concerned, the effects of privatization have been rather more mixed than the authors make out. It might also have been worth noting that Bank lending for agricultural infrastructure dropped sharply during the period in question and that this change, in many instances, had a greater impact than did the policy reforms. In the financial sector, the authors' account of the impact of reforms, particularly the raising of interest rates, is ambivalent and uncertain. Does the Bank now have a clear policy agenda in this realm?

In light of the heavy emphasis this paper places upon the need for sustained effort—in trade policy, tax reform, agricultural reforms, etc.—there is remarkably little evidence on it. Of what there is, some is disquieting. Follow-up (second) loans in agriculture, for instance, are infrequent; six are mentioned, of which only two are in low-income countries where the need is presumably the greatest.

The policy suggestion that, particularly where reforms have a long gestation period, the quick-disbursing element of adjustment lending be reduced in favor of disbursement that is geared to the pace of policy change may have some merit. It does not logically flow, however, either from this paper's data, which show remarkably full compliance as the norm, nor from the fact that there has generally been a slower response (in terms of economic performance) to policy change than had been expected. The rationale for quick-disbursing program lending relates to the need to cover the short-term costs associated with policy changes and to bolster these policies' credibility and sustainability, not to the lengths of their gestation periods en route to what are frequently fairly uncertain outcomes. If the Bank proposes to cut back on its balance-of-payments lending, it will have to find better arguments than are offered here.

Authors' Response

We are pleased that the candor of our paper gave the discussants something to sink their teeth into. We are also pleased that the lessons we draw from the Bank's experience with adjustment lending are so close to what Professor Harberger calls the professional consensus.

Professor Helleiner's comments indicate some confusion on his part about the purpose and empirical basis of the chapter. The purpose was to explain what lessons the Bank can draw from its experience with adjustment lending in terms of the design and implementation of adjustment programs. Statistics on the pattern of conditionality in adjustment loans and the rates of implementation were one source, but equally important were background reports prepared on each major sector, such as the one on industrial sector lending in the appendix. The circumstances of the countries and the nature of the programs vary in many dimensions, so that statistical evidence does not give a sufficient picture by itself and needs to be fleshed out with discussions of particular cases.

Trade policy reforms supported by adjustment lending are discussed extensively in Policy and Research (PPR)

Series no. 10, World Bank (1990). Chapter 5 of the RAL-2, which is not being discussed here, recommends the use of contingency clauses in adjustment loans.

Conditions for adjustment loans are, by the definition used here, the actions called for in the loan agreement as conditions for disbursement. About one-third of them—four per loan on average—are quantitatively specified. The President's Reports contain a list of planned policy actions that is typically about three times longer than the list of conditions in the legal agreement. Thus, about 10 percent of the actions called for in the President's Reports are quantified conditions for tranche release.

How much of the Bank's lending should take the form of adjustment lending is outside the scope of this chapter; chapter 5 of RAL-2 discusses it to some degree. Having an individual adjustment loan continue over a longer period, with a proportionately larger total value, would not generally result in a cutback in balance-of-payments lending. In appropriate circumstances it would enhance the response of the country in carrying out institutional and other reforms that take longer than the traditional quick-disbursing adjustment loan.

Part II

Macroeconomic Foundations for Sustainable Growth

Nominal Anchors, Stabilization and Growth: Some Thoughts on High-Inflation Economies

Miguel A. Kiguel and Nissan Liviatan

It is often said that in the high-inflation economies of Latin America such as Argentina and Brazil, stabilization of inflation is a precondition for the resumption of growth.[1] Indeed, high-inflation economies have a lot to gain from price stability—it may encourage domestic and foreign investment, help in carrying out trade reforms and create conditions conducive to the repatriation of flight capital.

In spite of the potential gains, almost all stabilization programs in those economies have failed. Moreover, those failures have made the next attempt at stabilization more difficult because they have resulted in higher external debt, greater capital flight and more unstable inflation. Some stabilization programs have been associated with growth in gross domestic product (GDP), but that growth has been cyclical, or short-term, rather than sustained. Further, domestic demand rather than exports has led the growth, which has also been characterized by real appreciation. Typically, ultimately deterioration of the current account has brought the economic expansion to a halt. In the end, temporary stabilization cum temporary growth appears to have slowed the long-term rates of growth in the economies in question and raised expectations of longer term inflation.

Only a very few stabilization programs have been successful. Their experience suggests that stabilization takes a very long time to accomplish. In Chile, it was not until after 1984, following a decade of disinflation policies, that stabilization led to sustainable growth. Similarly, Israel has been pursuing its stabilization effort for five years, and the economy is still in a recession. A second feature of successful stabilization is that during the adjustment the economy exhibits many of the same characteristics that are found in the case of failures. In particular, both Chile (in 1977–80) and Israel (1986–87) experienced an unsustainable growth cycle. In each case, the initial upsurge in output led to deep recession (especially in Chile). It seems, therefore, that successful stabilization is not only a long but also a painful process.

In these respects, the experience of high-inflation economies (or "chronic-inflation" countries, to use a phrase coined by Pazos 1972), differs from that experienced by the hyperinflationary countries in Europe, whose ability to bring their inflation under control marks them as remarkable success stories (Sargent 1982), despite some recessionary side-effects (as pointed out by, for example, Wicker 1986). The reasons for this difference are discussed in Kiguel and Liviatan (1988) and are not repeated here. It is only necessary to mention that in the chronic-inflation countries that adjusted well to living with inflation, the perception was that stabilization could be postponed (a choice that may make stabilization less credible) as compared with the explosive hyperinflation to which the economy could not adjust even in the short run.

The damaging effects of failed stabilization and the long time that must elapse before success is achieved suggest that the main costs of inflation do not usually appear in the short run (in fact, growth might not suffer much with high but stable inflation). Typically the costs appear at a later stage as inflation becomes more unstable, sometimes with hyperinflationary spikes, and the government feels compelled to stabilize because living with inflation is no longer an option. The fact that these costs may appear only in the relatively late stages of inflation explains how shortsightedness may push an economy into chronic inflation.

This chapter is concerned not with the beneficial effects of an eventual stabilization of inflation on growth. That outcome is taken for granted. Rather, the focus is on the real effects of stabilization programs themselves, with some aspects of their costs in terms of actual or potential growth highlighted. The paper is organized around the following questions. Given the cost of stabilization, is it preferable to learn to live with inflation, i.e., to develop techniques to mitigate it? Second, what is the explanation for the phenomenon of unsustainable growth during stabilization programs?

Third, what were the causes of the failed stabilizations, and why does successful stabilization take so long? Fourth, what role can external assistance play in increasing the chances for successful stabilization of inflation?

To a large extent the answers to the foregoing questions seem to hinge on two issues related to the credibility of the stabilization effort—will policy-makers sustain the fiscal policies, and will they have the resolve to uphold the nominal anchors of the system? There is broad agreement within the profession over the crucial roles of fiscal adjustment and belief in its persistence. There is much less agreement about the significance (or even the meaning) of the credibility of the nominal anchors as distinct from the fiscal component of the stabilization program. It is asserted here that the credibility of the nominal anchors influences important aspects of stabilization programs.

The type of nominal anchor adopted is also of great importance in explaining the behavior of real variables during disinflation. In particular, the phenomenon of unsustainable growth seems to occur mainly with stabilization programs that use the exchange rate as the main nominal anchor in an environment of partial credibility. Some space is therefore devoted to clearing up some conceptual issues related to nominal anchors.

Is Stabilization Necessary?

For many years the chronic-inflation countries in Latin America (the point applies also to Israel) succeeded in limiting the damage from inflation by an elaborate technology of living with inflation by means, primarily, of various methods of indexation. One of the best indicators of the sustainability of this system was the ability of these countries to maintain a stable ratio of taxes to GDP despite rising inflation. Thus, unlike Bolivia (a traditionally low-inflation country), where the eruption of hyper-inflation in 1982–85 almost completely eroded the ratio of taxes to GDP, Argentina and Brazil were able to sustain the ratio even in the face of a tremendous acceleration in inflation in the first half of the 1980s (table 6–1).

The philosophy of living with inflation rather than fighting it was adhered to especially strongly in Brazil, which achieved remarkable growth in the 1967–80 period. It shows clearly that growth and inflation (in the two-digit range) may be compatible if methods to mitigate inflation are employed.

On the other hand, developments in the second half of the 1980s suggest that in the end the technology of living with inflation lost the battle to rising inflation. The recent destabilizing cycles of inflation in Argentina and Brazil (figure 6–1), whose governments managed to stop the hyper-inflation with recurrent impositions of price controls, were the first sign of this development. The next sign was the hyper-inflationary outburst in Argentina in the first half of 1989, which eroded the ratio of taxes to GDP by about one-third (in the second quarter) via the Tanzi-Oliveira effects. These developments indicate that the inflation in chronic-inflation countries eventually leads to hyper-inflation, with the greatest impact on GDP growth. It should be noted that there is no reason to expect that reaching hyper-inflation in chronic-inflation countries will enable the problem to be resolved as in the classical European hyper-inflations. The scenario in chronic-inflation countries may be quite different. The existence of the technology to mitigate inflation may create an unstable situation even if, initially, the usual orthodox disinflationary policies succeed in stopping the hyper-inflation.

Recognition that chronic inflation is unsustainable in the long run and will lead to major crises in its advanced stages is an important reason to stabilize at an earlier stage. Further, as long as policy-makers postpone full stabilization, they will face serious problems with their credibility in view of the history of failures. These problems relate both to their ability to carry out the proper fiscal adjustment and their resolve to defend the nominal anchor of the program. The distinction between these two aspects of inflation is not fully appreciated. It is therefore useful to start by clarifying some of the conceptual issues by means of an example.

Fiscal Deficits and Nominal Policies

When distinguishing between fiscal and nominal policies, it is necessary to specify what kind of fiscal deficit is involved. The deficit defined as "public sector borrowing requirements" already includes the inflationary component of interest and is therefore an effect rather than a cause of inflation. Therefore, the concept of an "operational deficit" (the sum of the non-interest budget deficit, which is sometimes referred to as the "primary deficit," and of real interest payments on government bonds) is to be preferred. It is shown below, by means of an example, that it is possible to have different inflation rates (determined by nominal policies) with the same operational deficit.

For simplicity's sake, suppose, first, that the money base is the only liability of the public sector. Again to simplify matters, assume that money consists only of bank deposits (in the following example money means a broad aggregate such as M_3, and the interest paid on base money is the average rate corresponding to this broad base). Let I, i and i_d denote the nominal interest rates on commercial loans, banks' reserves at the central bank and deposits held at commercial banks, respectively. Then the zero profit condition for a competitive banking system is given by[2]

$$(6\text{-}1) \quad I(1 - \theta) + i\theta = i_d$$

where θ is the (constant) reserve ratio defined as $H = \theta M$, with H defined as reserves (base money) and M as deposits ("money"). Assuming a zero real rate of interest on loans, so

Figure 6-1. Inflation as measured by the Consumer Price Index and Trends in Inflation, 1982-89 (first quarter data)

Legend:
——— Inflation
- - - - Inflation trend

A. Argentina

Bunge y Born plan (Apr.)

Austral (June)

Primavera (Aug.)

Austral II (Oct.)

Spring plan (Sept.)

February plan

Percent (monthly)

1982 1983 1984 1985 1986 1987 1988 1989 1990

B. Brazil

Summer (Jan.)

Cruzado (Feb.)

Bresser (June)

Percent (monthly)

1982 1983 1984 1985 1986 1987 1988 1989 1990

Note: Inflation trend = $CPI/(CPI_{t-12})^{1/12} - 1$.
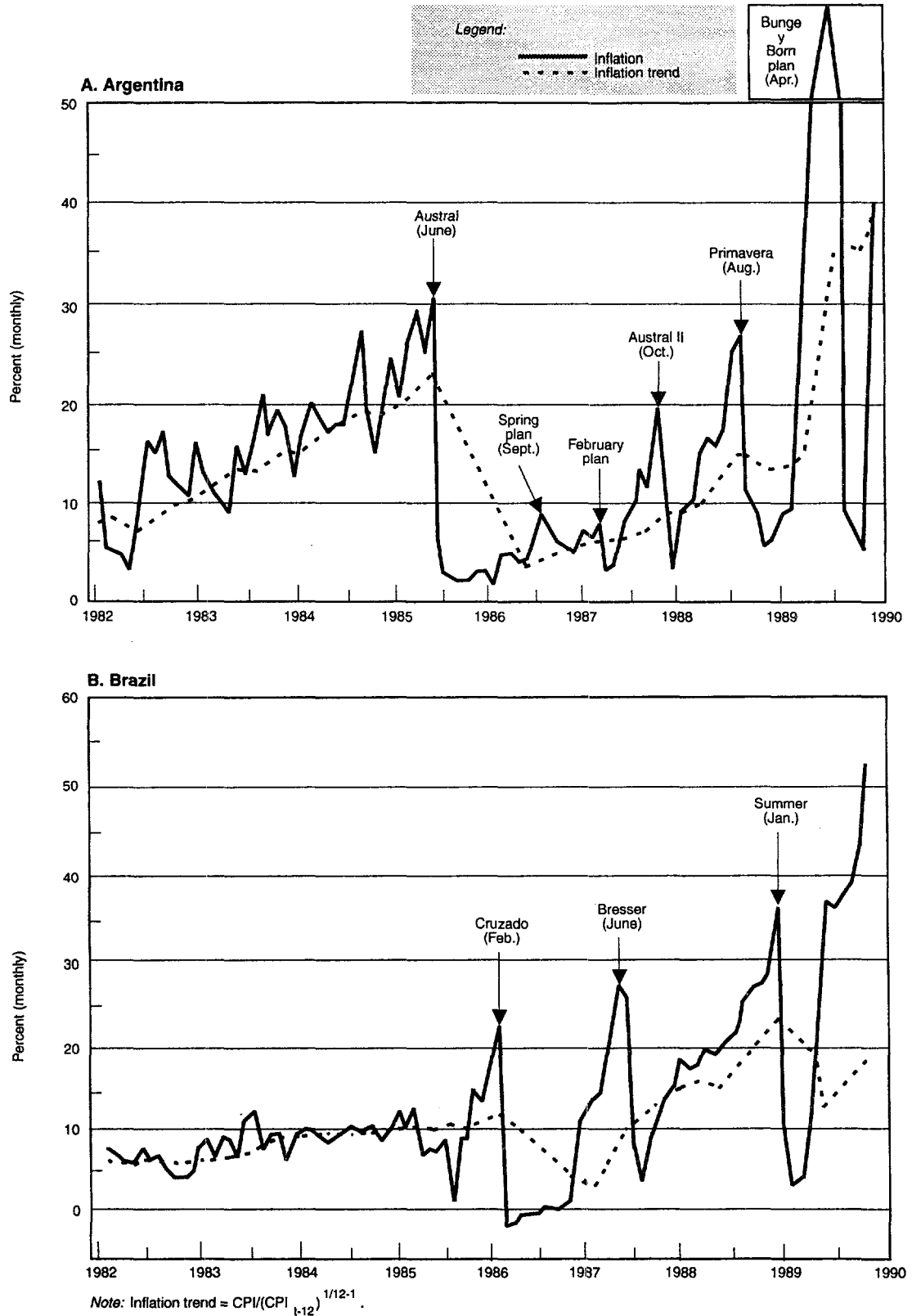
Source: For Argentina, Fundación de Investigaciones Ecónomicas Latinoamericanas (various issues) and for Brazil, Instituto Brasileiro de Economia/Fundação Getulio Vargas (various issues).

Table 6–1. Inflation,[a] Tax Revenue and Seigniorage in Argentina, Bolivia, Brazil and Mexico

Country	1979	1980	1981	1982	1983	1984	1985
Argentina	159.0	101.0	104.0	165.0	344.0	627.0	672.0
Inflation (percent)							
Public sector revenues							
(percentage of GDP)	29.0	31.0	32.0	28.0	29.0	31.0	32.0
Seigniorage (percentage of GDP)	5.9	4.8	3.5	7.8	8.6	7.1	6.5
Bolivia							
Inflation (percent)	20.0	47.0	29.0	133.0	269.0	1,281.0	11,750.0
Revenues of central government							
(percentage of GDP)	9.4	9.6	9.4	4.6	2.6	2.6	1.3
Seigniorage (percentage of GDP)	1.1	3.2	1.6	12.1	10.0	15.9	8.8
Brazil							
Inflation (percent)	53.0	83.0	106.0	98.0	142.0	197.0	227.0
Total receipts of general							
government (percentage of GDP)	28.0	28.0	31.0	34.0	32.0	30.0	33.0
Seigniorage (percentage of GDP)	3.3	2.0	2.0	2.1	2.0	2.7	2.7
Mexico							
Inflation (percent)	n.a.	26.0	28.0	59.0	102.0	66.0	58.0
Total public sector							
revenues (percentage of GDP)	n.a.	27.0	27.0	29.0	33.0	32.0	31.0
Seigniorage (percentage of GDP)[a]	n.a.	2.7	2.7	4.2	2.4	3.0	2.5

n.a. Not available.

Note: Inflation is the annual average of the consumer price index (CPI).

a. Based on M1. The use of this money base for this purpose is problematic because it was remunerated by the Central Bank.

Source: Argentina, Bolivia and Brazil—Kiguel and Liviatan (1988); Mexico—World Bank data base.

that $I = \pi$ (the rate of inflation)[3], it is possible to express the demand for real balances as $L(\pi - i_d)$. The cost of holding money can also be expressed as

$$(6\text{-}2) \quad \pi - i_d = \theta\,(\pi - i) \equiv x.$$

The money market equilibrium is then given by

$$(6\text{-}3) \quad \frac{M}{P} = L(x), \quad L' < 0$$

where P denotes the price level.

The government's budget equation in steady states is given by

$$(6\text{-}4) \quad G - T + ih = \pi h$$

where G and T are real government expenditures and taxes and h is H/P. Equations (6-2)-(6-4) allow the primary fiscal deficit D $(= G - T)$ to be expressed as

$$(6\text{-}5) \quad D = xL(x) \equiv S\,(x)$$

where S is a concept of net seigniorage.

Assuming $S' > 0$, then D determines x but not π. In fact, any π is possible provided i is adjusted. It may be argued that under these conditions the policy-maker will choose the lowest possible π that is consistent with D. If $x(D)$ is the solution of equation (6-5), then, assuming $i \geq 0$, the mini-

mum value of π is $\pi_m = (1/\theta)\,x(D)$.

However, while π_m is determined by D, there are many reasons why π may exceed π_m. For example, if following an external shock the agents expect inflation to be higher than π_m and adjust their nominal wages accordingly, then maintaining inflation at π_m may involve a recession that the policy-maker may be unprepared to accept. Consequently, inflation may end up higher than π_m.

Recent theoretical developments from work on policy games (see Barro and Gordon 1983) provide an analytical framework to explain how inflation can be in excess of π_m when the public suspects the policy-maker of using surprise-inflation tactics to erode the real balances (to gain more seigniorage) or the real wage (to raise employment or improve the trade balance). These considerations can explain how in the long run inflation can stay above the level justified by the "fundamentals" (π_m). Only where the government's announcements are completely credible will $\pi = \pi_m$. In a discretionary regime in which the government does not precommit to a monetary rule, non-fiscal considerations such as a worsening current account may raise π far above π_m, so that the non-fiscal component $(\pi - \pi_m)$ is the dominant factor in inflation.

The likelihood of ending up in an equilibrium with a rate of inflation above π_m is greater when there is uncertainty about the preferences of the policy-maker. For example, suppose there are two types of policy-makers who differ in their preferences for inflation and unemployment, and there

is uncertainty about which type is in government. A "tough" policy-maker (one who prefers less inflation)[4] will have to face a cost in terms of unemployment for some transitional period. The reason is that nominal wages will be set according to inflationary expectations, which are a weighted average of the optimal policies of tough and weak types of policy-makers. Consequently, real wages will rise, and unemployment will increase.

According to this approach, the tough policy-maker cannot avoid a recession in the process of establishing his or her credibility. This process may be a long one for several reasons, such as the policy-maker not having full control over the policy instruments, a situation that will lengthen the time the public needs to learn about the preferences of the policy-maker. Another reason is that the policy-maker preferring less inflation will tend to compromise on the targets for inflation to cut the costs of the inevitable recession, an approach that will again lengthen the disinflation.[5]

An important issue that remains open is the interaction between fiscal and nominal policies. In particular, it has been observed empirically that attempts to reduce inflation through nominal policies without a fiscal adjustment have failed. If, however, the existence of a non-fiscal component of inflation is accepted, why can it not be reduced without an accompanying cut in the fiscal deficit? This question is addressed later.

Some Empirical Observations about Nominal Anchors and Fiscal Adjustment

The prevalent view among economists is that inflation in Latin America is primarily the result of fiscal deficits (Sachs 1987). Thus, for example, the increase in inflation following the outbreak of the debt crisis in 1982 was caused by a rise in deficit financing that came about by means of seigniorage as a result of a cut in the transfer of external resources.

While this view may be valid in some cases, it tends to overlook the role of non-fiscal considerations in the upsurge in inflation, as illustrated by the adjustment Brazil and Mexico carried out in the post-1982 period. Note, first, that both countries implemented very remarkable cuts in their fiscal deficits (table 6–2). They also did not rely on seigniorage to a greater extent than previously (table 6–1). Estimates calculated for the present study show that seigniorage as a percent of GDP remained constant in Mexico—2.7 percent in 1980–81 and 2.6 percent in 1983–85 on average. Brazil experienced a small increase from 2 percent to 2.4 percent in the corresponding periods. For the same periods, inflation in Mexico rose from 27 percent to 73 percent and in Brazil from 95 percent to 189 percent (annual averages according to the consumer price index [CPI]). In both cases, the changes in inflation were a step increase.

The explanation of this increase in inflation is certainly not a fiscal one. Rather, the cause was the obvious need to improve the current account, which led to a vigorous policy of depreciation that helped reduce real wages and raised the real exchange rate (table 6–2). Thus the governments used inflation, via devaluations, to speed the correction of relative prices in the context of an external crisis. It may be presumed that the use of inflation as a policy instrument to achieve the foregoing goals changed the public's perception about the weight the government attached to inflation relative to balance-of-payments considerations. This perception in turn may have led to a rise in the basic level of inflationary expectations. It is well-known from the policy game literature that a change in a policy-maker's preferences in that direction will cause a change in inflation not only in the short run but also in the long run.

An alternative explanation, in the same spirit, involves wage indexation and the asymmetry of contract adjustments. With full lagged wage indexation (formal or informal), a reduction in the real wage, within the framework of a given indexation scheme, can be accomplished only by an increase in the plateau for inflation. The need to erode the real wage in Mexico and Brazil therefore required a step increase in inflation, which was accomplished through devaluations. In principle, it is possible later to reverse this increase in inflation without raising the average real wage. The mechanism is a change in the terms of the indexation scheme—the base (peak) wage can be reduced or the intervals for the cost of living adjustments (COLA) can be lengthened. However, this scenario will never take place as long as the agents do not believe the inflationary trend is going to be reversed in the longer run. In this situation, real wages are eroded by stepping up inflation and raised by increasing the base wage.

The foregoing examples make clear that non-fiscal factors play an important role in raising the level of inflation. They also underscore the fact that even a sharp cut in the fiscal deficit will not force a reduction in inflation if it is not accompanied by an appropriate policy with regard to nominal anchors. As noted, however, when the policy-maker is not fully credible, the use of nominal anchors must involve social costs. The actual form of the cost will depend on the type of nominal anchors used in the policy package. In the present study, exchange rate-based stabilization (ERBS), which high-inflation economies use the most often, is considered, with the study limited to those programs considered to be "major."

Exchange Rate-Based Stabilization

By ERBS is meant programs in which exchange rate policy is used for purposes of disinflation. The program may take various forms, such a fixed exchange rate, a crawling peg, a step-wise adjustable peg and the like. It may also include capital mobility to various degrees. ERBS includes both orthodox and heterodox (incomes policy-supported) programs. In the latter case, initially the exchange rate is part of

Table 6-2. Annual Macroeconomic Indicators, Brazil and Mexico

Brazil	1982	1983	1984	1985
Growth rates (annual percentage change)				
GDP[a]	0.9	-2.5	5.7	8.3
Consumption[a]	3.0	-3.0	2.8	7.1
Imports (constant prices)	-6.0	-17.4	-2.9	-
GDP deflator	93.0	152.0	211.0	235.0
Nominal exchange rate[b]	93.0	221.0	220.0	235.0
Real industrial wages	7.5	-8.6	-1.4	6.3
Operational deficit/GDP (percent)	8.3	4.8	2.7	4.3
Real effective exchange rate (index)	100.0	123.0	123.0	128.0
Current account balance (billions of U.S.$)	-16.3	-6.8	-	-0.2

Mexico	1980	1981	1982	1983	1984	1985	1986
Growth rates (annual percentage change)							
GDP per capita[b]	5.4	5.1	-3.1	-7.6	0.8	-0.1	-1.4
Consumption per capita[b]	4.9	4.8	-1.4	-9.1	0.2	-0.8	-7.7
GDP deflator	29.0	27.0	61.0	92.0	62.0	54.0	78.0
Nominal exchange rate[c]	-4.0	-1.0	114.0	96.0	25.0	40.0	143.0
Real industrial wages	-4.4	1.2	1.9	-26.0	2.9	1.8	-19.2
Imports (real)	31.9	20.3	-37.0	-41.7	19.8	11.8	-18.0
Operational deficit/GDP (percent)	5.2	10.0	6.5	2.4	2.1	2.1	2.7
Primary deficit/GDP (percent)	n.a.	9.4	5.1	-5.1	-5.0	-3.3	n.a.
Real effective exchange rate (index)	100.0	91.0	134.0	138.0	114.0	113.0	152.0
Current account balance (billions of U.S.$)	-8.1	-13.8	-6.2	5.4	4.1	1.2	-1.3

- Negligible.
n.a. Not available.
a. Preliminary figures.
b. At constant prices.
c. Effective exchange rate.
Source: World Bank data.

a broader set of nominal anchors; then, as the price controls are made more flexible, it becomes the main nominal anchor (as in Israel or Mexico). Otherwise, ERBS is in fact the second stage of a stabilization that starts with monetary anchors.

ERBS programs also differ with respect to the active or passive role assigned to monetary policy. The *tablita* policies in the Southern Cone countries entailed the most passive role. Israel began with a tight monetary policy but then gradually loosened it, especially in 1989–90. In none of the programs was money used as an anchor in the sense of having targets for monetary expansion.

Most ERBS is characterized by a sequence of expansion and recession of GDP growth and by a deterioration in the current account. These features are shown, for the various programs in the present study, in figure 6–2 (the shaded areas represent ERBS).[6]

One of the main causes for the failure of ERBS in Latin America has been the lack of supporting fiscal policy. For

example, although four of the five ERBS programs in Argentina in the past 30 years (Kiguel and Liviatan 1990a) began with a reduction of the fiscal deficit, the governments maintained it for only a limited time (one to three years). The programs collapsed when the fiscal support was discontinued. Similar developments have been observed with other ERBS programs (for example, the Uruguayan stabilization of 1968–71). These programs were characterized by initial booms in output, increases in real wages, real appreciations and subsequent recessions. In some cases the collapse of the exchange rate regime was associated with a severe crisis (such as that in 1980–81 in Argentina and the 1972 collapse in Uruguay).

It is interesting to note, however, that similar developments were also observed in the case of ERBS programs that involved continued support through fiscal adjustment, as occurred in the Chilean and Uruguayan *tablita*-type stabilizations around the end of the 1970s and in the Israeli stabilization of 1985. With respect to Chile, the fiscal ac-

Figure 6-2. GDP Growth and Current Account

A. Argentina
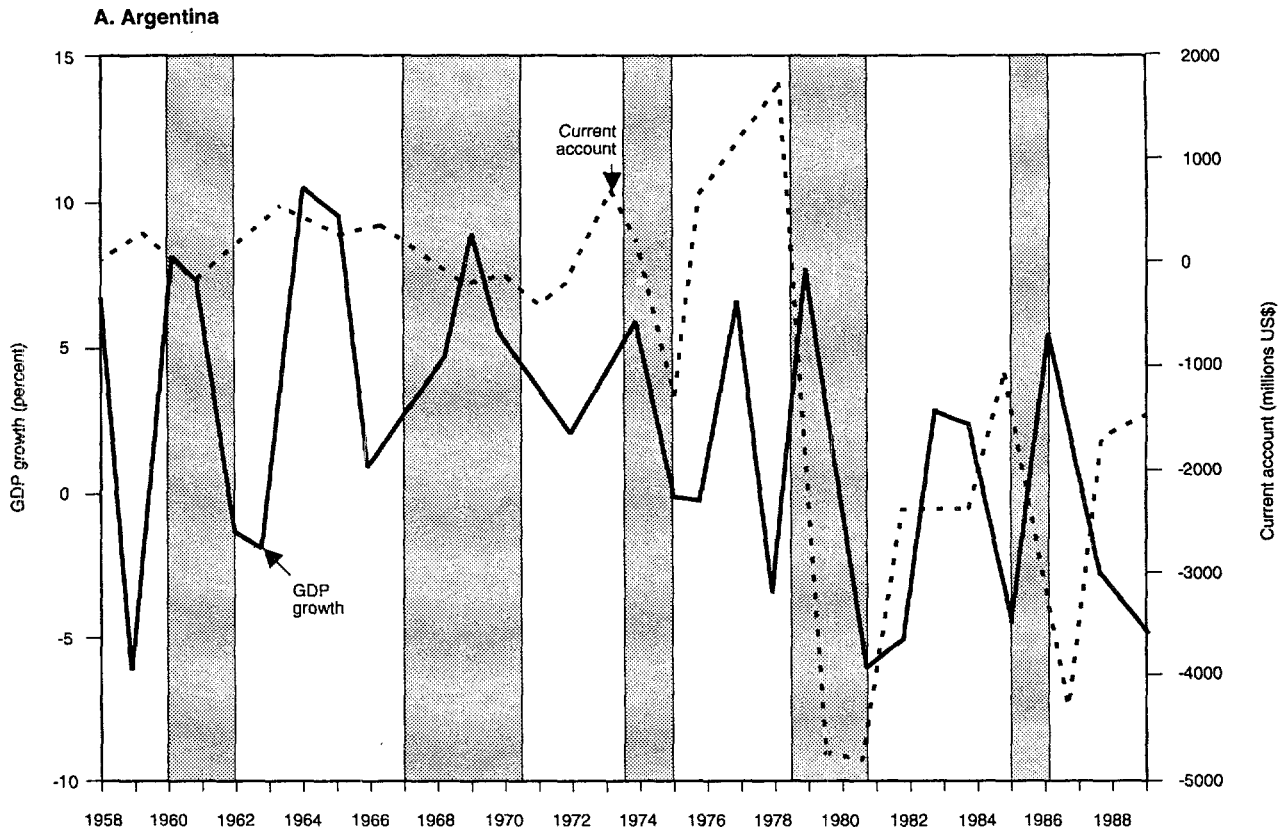
Source: Fundación Mediterranea; Fundación de Investigaciones Ecónomicas Latinoamericanas (various issues), Indicadores de coyuntura; and International Monetary Fund (various issues).

B. Brazil
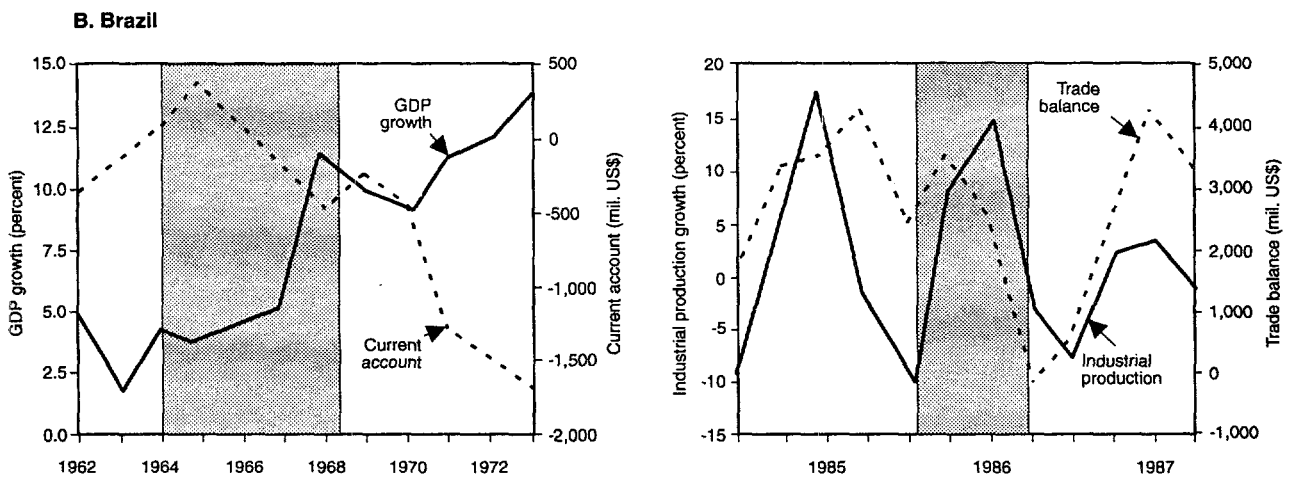
Source: International Monetary Fund.

Source: Instituto Brasileiro de Economia/ Fundação Getulio Vargas (various issues).

Figure 6–2. (continued)
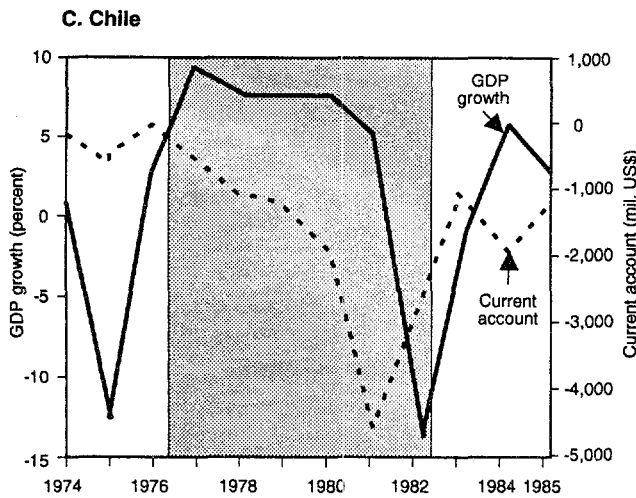
C. Chile

Source: Banco Central de Chile.

D. Uruguay
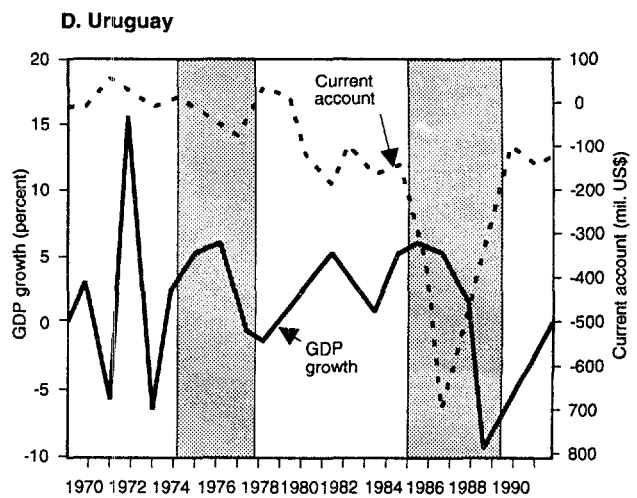
Source: Viana, (1988) and International Monetary Fund (various issues).
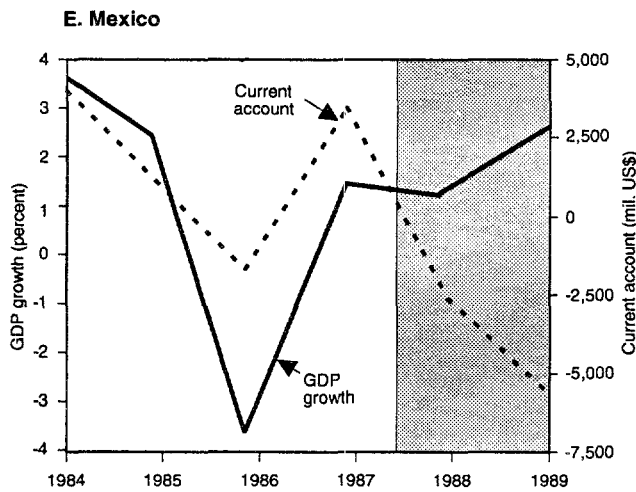
E. Mexico

Source: Banco de Mexico.
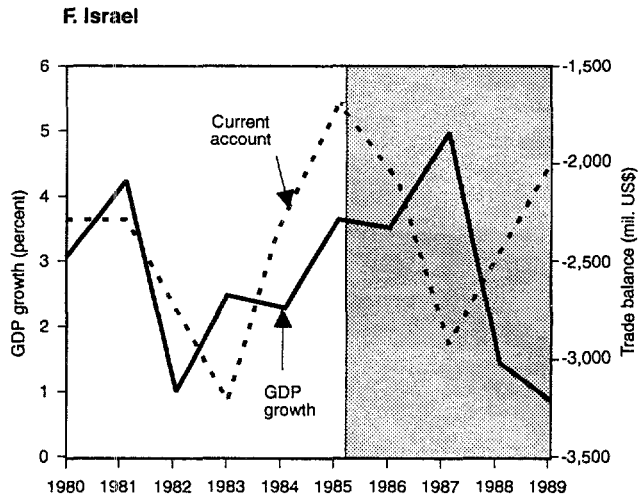
F. Israel

Source: Bank of Israel.

counts were in surplus throughout the last three years of the program, whereas Israel ran a surplus in the first two years. Nevertheless, in all these cases there were output cycles that ended, in the Southern Cone countries, in severe recessions and in Israel in a prolonged one (Kiguel and Liviatan 1990a). Other characteristics included the real appreciation of domestic currencies and the emergence of current account problems (except in the case of Israel). Thus, the phenomenon of temporary growth cannot be explained solely by a lack of fiscal balance.

What is the explanation for the difficulty of maintaining a stable exchange rate when the government's budget is balanced? One possible reason is that the nominal anchor lacked credibility. Suppose the agents do not expect the

government to sustain the program in the longer run and that ultimately a balance-of payments crisis will emerge, as has happened in the past. In this case the agents expect tight credit conditions and liquidity constraints to emerge in the future, conditions that induce them to shift expenditures to the present period. In an ERBS, this type of expectation tends to be self-fulfilling, since the central bank supplies the foreign exchange reserves to finance the expenditure boom and capital flight. This pattern may explain the actual consumption booms observed with ERBS programs. This expansionary tendency may also explain part of the rise in real wages and the real appreciation.[7]

An additional point is that uncertainty about the persistence of the official exchange rate policy will give rise to

expectations of devaluations in excess of actual ones, a situation that will tend to raise real wages (or prevent them from falling) even when the boom in expenditures subsides. This factor then exacerbates the recession.

It has been argued that the rise in real wages under some ERBS programs was attributable to the effect of lagged wage indexation. This argument was mentioned especially in connection with the Chilean *tablita* (Edwards and Edwards 1987). However, since the same phenomenon was also observed with heterodox programs, which used incomes policies to eliminate the inertia, it seems likely that the dominant consideration was expectations.

The real appreciation that characterizes ERBS creates an unfavorable environment for effective reform of the trade and capital accounts. Trade liberalization, which tends to worsen the trade balance in the medium run, requires a real depreciation to maintain the external balance. However, just the opposite occurs under ERBS. While trade has been liberalized under some ERBS programs, often the motivation has been the desire to strengthen the effect of the exchange rate on domestic prices and to support the disinflation by a direct reduction in the prices of imports. However, a worsening trade balance may reduce the belief in the persistence of the reform and therefore prevent the shift in resources from import-competing to export industries.

The liberalization of the capital market under the *tablita* policies in the Southern Cone countries was also intended in part to offset the current account deficits by generating inflows of private capital. However, if there are problems with credibility, these inflows have a destabilizing effect on the economy.

It seems, therefore, that on the whole ERBS creates conditions that are unfavorable to reform of the trade and capital accounts, which are in principle the most important reforms for the generation of endogenous growth (see, for example, Romer 1989).

Money-Based Stabilization

In view of the difficulties posed by ERBS, is it not preferable to use the supply of money as the nominal anchor? In practice, use of money-based stabilization (MBS) has been rare (with reference to major programs). The first stage of the Southern Cone stabilizations (that is, prior to the *tablitas*) implemented by the military regimes in the 1970s offers some evidence on the effect of MBS (Ramos 1986). While these examples are not classic cases of MBS in the sense that they did not involve targets for the supply of money, they did use a fiscal adjustment with occasional tight monetary policy.

The effect of these programs was recessionary (especially in the case of Chile) on the output side, with a slow

disinflation of prices. Unlike ERBS, the programs were not characterized by real appreciation or a rise in real wages. Similarly, the state of the current account improved, contrary to the experience with ERBS.

Current policies in Argentina and Brazil provide some further, more recent experience with MBS. In both cases, policy-makers reduced the fiscal deficit to a near balance and implemented a very tight monetary policy (including freezes on a large part of liquid assets as well as compulsory conversions of short-term into long-term public debt). While it is too early to evaluate these programs, the results seem to confirm the recessionary effect of MBS in the early stage of stabilization and the favorable effect on the trade balance.

A basic feature of MBS is that these recessionary costs appear up front, whereas with ERBS they appear at a later stage as a result of the real appreciation and the deterioration of the current account. The immediate recessionary effect of MBS is mainly the result of the short-term downward rigidity in prices and wages and the lack of credibility in the persistence of the monetary crunch (these two factors are not unrelated).[8] If there is full mobility of capital, a real appreciation would be expected. In practice, the uncertainties surrounding the stabilization may discourage the inflows of capital. This situation may explain why there were real depreciations rather than appreciations under MBS in the Southern Cone in the 1970s. However, the current Argentinean MBS has generated a pronounced real appreciation.

Another difference between the two strategies is that, under MBS, it is not usual for policy-makers to set targets for an expansion of the money supply, whereas under ERBS it is very common to announce targets for the exchange rate (whether under a full peg or the use of a pre-announced rate as in the *tablita* fashion). One reason for this difference seems to be that with MBS the credibility problem is reflected in a slow reduction in short-term expectations of inflation that prevents implementation of the rules for a low monetary expansion.[9] On the other hand, under ERBS the program's lack of credibility shows up mostly in the current account and to a much lesser extent in prices.

Of the two strategies, ERBS has the advantage of avoiding large initial recessionary costs.[10] However, postponing the confrontation with overvaluation to a more distant future tends to exacerbate the credibility problem. People may suspect that the policy-maker's current reluctance to face the recessionary consequences of stabilization indicates an inability to face them later. This perception leads to speculation about the collapse of the policy, which exacerbates the problems of overvaluation, capital flight and booms in consumption.

It seems that the case for ERBS must depend on the ability to perform a fiscal *overadjustment* that prevents a sharp deterioration in the balance of trade. This requirement

goes beyond the conventional one of avoiding money creation through the government's budget in order to prevent a balance-of-payments crisis a la Krugman (1979). What is needed is a countercyclical fiscal policy that offsets the effect of adverse expectations that lead to a boom in expenditures. Ideally, fine-tuning the fiscal adjustment could keep the current account in balance. However, even if fiscal policy offsets the expenditure boom in the early stages of ERBS, it does not necessarily disperse the doubts about the persistence of this policy. Therefore real wages will still tend to rise, and the real exchange rate will tend to appreciate in anticipation of a possible collapse (this situation is especially likely in the case of forward-looking staggered wage contracts). With the current account maintained in balance by fiscal policy, the result will be recessionary. Thus, even in this scenario, it is impossible to avoid the recessionary consequences of stabilization. It is possible, however, to avoid the balance-of-payments crises that characterize many ERBS programs and endanger stabilization.

Israel did attempt to follow a countercyclical fiscal policy as part of its stabilization. The fiscal adjustment (especially on the side of real expenditures) succeeded in offsetting much of the effect of the boom in consumption on the trade balance. However, even this policy was insufficient to prevent the output cycle. Mexico implemented a more effective fiscal policy as part of its stabilization, with most of the fiscal adjustment carried out in the years *preceding* the nominal stabilization through the Pact for Economic Solidarity of 1988. This approach may have increased the credibility of the exchange rate policy and helped contain the boom in consumption and the phenomenon of overvaluation.[11] The Mexican experience suggests that the ideal approach may be to use fiscal policy to improve the current account prior to the nominal ERBS. However, this step-wise solution may be difficult to carry out where inflation is very high and unstable.

The relatively successful ERBS programs of Mexico and Israel in the 1980s were characterized by very high (ex post) real interest rates. In part those rates reflect a lack of credibility of the exchange rate policy and, in the case of Israel, in part a policy of protecting the balance of payments. However, high interest rates also characterize MBS. Thus, both types of policies create an unfavorable environment for investment.

The Phenomenon of Failed Stabilization

There is little doubt that repeated failures to stabilize harm the long-term prospects for growth a great deal. This outcome is especially evident in the case of failed ERBS programs, which are often accompanied by massive capital flight and severe crises in the real and financial sectors. It has been pointed out that in most cases the reason for the failure of ERBS is the lack of fiscal support (or

discontinuation of the initial support). However, this answer leaves open the question of why policy-makers initiate a stabilization program whose probability of failure is very high. Understanding this phenomenon is especially important to the issue of external support for inflation-stabilization programs (an issue addressed later).

The reason policy-makers initiate stabilization programs that are very likely to fail is relatively simple in the case of the "populist" programs common in Latin America. (The two cases in the sample used for the present study were the Peronist stabilization of 1973–75 in Argentina and the Cruzado plan of 1986 in Brazil. The Peruvian stabilization of 1985 is another example.) Apart from a lack of fiscal austerity, these programs entailed a deliberate policy of raising real wages in an unsustainable manner. According to a simplistic explanation, it could be said that in these cases the policy-makers deliberately aimed to bestow short-term benefits on the existing population (or parts of it) at the expense of the future. However, political economists need to inquire into the deeper reasons for this kind of behavior.[12]

It is more difficult to understand why policy-makers who initiate a *serious* stabilization program abandon it after two or three years, as was the case with most of the programs in this study. For example, the Austral plan in Argentina started along lines that were very similar to those of the Israeli plan (Blejer and Liviatan 1987), including an impressive fiscal adjustment. Nevertheless, after about one year the government relaxed the fiscal policies and abandoned the nominal anchors (mainly the exchange rate).

One possible answer is that external shocks that could not have been anticipated with certainty might have destabilized the programs (Dornbusch 1990a). Thus, every program faces a probability distribution of failures that depends, among other things, on the adjustment effort of the program. Indeed, the external shocks of rising oil prices and interest rates might have been factors in the failure of the Southern Cone stabilization efforts in the early 1980s. However, in the case of the Austral program, it is hard to identify any external shock that led to abandonment of the program.

The foregoing discussion suggests that when the cost of failure to the policy-maker is low, the adjustment effort will be limited so that the probability of failure will be high. This outcome may characterize the programs of policy-makers from whom the public does not expect much.

An alternative explanation might be along the lines of a modified version of the ideas of Alesina and Drazen (1989). A successful stabilization program normally requires different sacrifices by different sectors of the economy. The degree to which any sector is willing to give up some of its medium-term interests to contribute to the success of the overall program (even though it is in that sector's long-run interests) is the private information of that sector. Before a government initiates a program, it cannot know the extent to which the various sectors will be ready to give up their

relative positions in the economy. In effect, the government tests this readiness when it initiates a stabilization program. A program that seemed plausible at its inception may turn out to be politically infeasible in the light of reality. The various interest groups will try to outwait each other, hoping the other groups will make the necessary concessions. If none is ready to make concessions, then the government will have to stop the "war of attrition" by abandoning the program.

The phenomenon of *repeated* failures is even more difficult to explain. For example, Argentina's history over the past 30 years is full of failed stabilization efforts, some of which look very similar to others. According to Dornbusch (1990a), awareness of the cost of failure should lead to a bigger adjustment effort aimed at reducing the probability of failure. However, there is no clear evidence on this point.

A possible explanation for the repeated attempts at stabilization without an increased stabilization effort is the deteriorating state of the countries' economies. Consistent with the approach of Alesina and Drazen, it may be conjectured by policy-makers that the absence of a true stabilization causes continuous deterioration of the economy that will make the various interest groups more ready to make concessions. Consequently, they try again, with the same effort, even though their earlier efforts failed.

Why Does Successful Stabilization Take So Long?

It was noted that the (scanty) evidence on successful stabilization suggests the process is very lengthy. The Chilean experience also teaches that it is necessary to distinguish between a stabilization *program* and a stabilization *process*, which may consist of a number of programs. Chile made two important switches in the course of its stabilization, which started at the end of 1973. Disappointed with the slow pace of disinflation under some variant of MBS, the government moved gradually to an ERBS that in 1979–81 took the form of a full peg to the dollar. Then, after the crash of this program in 1982, it abandoned the ERBS and shifted to a more balanced program that relied implicitly on monetary policy, the de-indexation of wages and a fiscal adjustment that reduced the public sector deficit from 9 percent of GDP in 1984 (this high ratio being related to the 1982 crisis) to a surplus of 3 percent in 1988 (Corbo and Solimano 1990). Under this new regime, Chile experienced a transition to sustainable growth with a competitive real exchange rate and low and stable real wages.

The Chilean experience helps put stabilization programs in better perspective. It is not so much the individual stabilization program that is important in long run, but rather persistent adherence to some basic principles. These consist of a striving for fiscal balance (in spite of understandable deviations during recessions), an insistence on using *some* nominal anchor and avoidance of surprise-inflation tactics

as a means of eroding real balances or real wages (on this point see Corbo and Solimano 1990). Only when these principles are applied over a long period can the credibility of fiscal and nominal policies be restored.

The Israeli stabilization provides further evidence that successful stabilization takes time. Quite early in the program the public perceived that short-term inflation would run about 20 percent a year, and that expectation persisted despite the non-accommodating exchange rate policy followed in 1986–88, which led to a real appreciation and an eventual recession. The stubbornness of the inflationary expectation, despite fiscal balance, indicates clearly the long-term nature of adjustment.

Since early 1990, Israel pursued a devaluation policy that roughly accommodated the low inflation step (20 percent a year). Even so, the exchange rate remained below a competitive level (when viewed in the context of a full employment economy). A policy of stepped-up devaluation would probably have mitigated the recessionary phase but only at the cost of raising inflationary expectations. It seems that only by demonstrating a willingness to confront a recession is the government able to enhance the credibility of its commitment to the nominal anchors.[13]

It should be noted that at the beginning of its stabilization program Israel thought that a combination of a balanced budget and incomes policy would be sufficient to overcome the credibility problems of stabilization. No one realized that a wage-price freeze conveys very little information to the public about the government's resolve in dealing with the issue of nominal anchors in a decontrolled economy. It is very easy to maintain a stable exchange rate when wages and domestic prices are frozen. The problem of establishing credibility surfaces when flexibility is initiated, a process that is lengthy.

It was noted that one reason for the slowness of adjustment is the "noise" in the use of policy instruments. For example, in Israel the government was quite stubborn with its exchange rate policy but at the same time adjusted public sector prices in line with inflation. This measure, which reflected the struggle between fiscal and nominal objectives, prolonged the confusion and the learning process by the public about the change in regimes. Another reason for a lengthy learning process is the tendency of policy-makers to compromise with adverse expectations. In the case of Israel, the government could not persist with a pegged exchange rate and had to shift eventually to a more flexible policy. Uncertainty about how far the government would carry the compromise policy added additional confusion to the learning process.[14]

Another reason for the long time required for successful stabilization may be the consequences of the initial fiscal shock treatment. The effort to eliminate the fiscal deficit in the early stages tends to create a distorted system of taxes and expenditures. The Israeli stabilization shows that much

of the increase in taxation via the Tanzi effect fell on the business sector, a phenomenon that led to a reduced incentive to produce and invest. The comprehensive fiscal reforms that were supposed to redress this situation stumbled over the elimination of the tax exemptions, which was required to balance the reduction in taxation. It seems the social struggle over the allocation of the adjustment costs can be viewed as a "war of attrition" between the various sectors, which lengthens the transition.

If it is true that successful disinflation in a chronic-inflation country takes many years, even if carried out with the resolve of the Chilean military regime, then it is perhaps more understandable why so many stabilization programs end in failure. To the earlier explanations concerning failed stabilization may be added another one—policy-makers have been unaware how long it takes to complete a successful stabilization.

Recent work on signaling theory suggests that a policy-maker may establish credibility early in the game by adopting a sufficiently large overadjustment in the initial phase of the program (see, for example, the discussion of a "separating equilibrium" in Vickers 1986). However, when the tremendous efforts made by Chile in 1974–75, Israel in 1985–86 and Mexico in 1988–89 (and before) are examined, the applicability of this principle to the issue in question is unclear.

As noted, it seems that toward the end of the 1980s some basic changes took place as a result of the evolution of inflation in chronic-inflation countries. Specifically, there appears to have been a growing recognition that the technology of living with inflation was no longer effective and that the economies were no longer protected against hyper-inflationary outbursts. This recognition may have led to a shortening of potentially successful stabilization programs.

The foregoing view is in line with the "crisis theory of stabilization" and the "war of attrition" approach of Alesina and Drazen. Put differently, only a severe hyper-inflationary crisis can produce the required social attitude for true disinflation. It was pointed out, however, that at this stage it is unclear whether this theory, which worked so well for the classical hyper-inflations in Europe, will also work for chronic-inflation countries that have finally become vulnerable to hyper-inflation. It should not be forgotten that during the hyper-inflation in Europe prices were stable, whereas in countries such as Argentina and Brazil an annual rate of inflation of 100 percent was not above the norm of the past decade. The possibility that full stabilization may remain a lengthy undertaking despite the constant threat of hyper-inflation cannot be ruled out.

This section concludes by clarifying the term "successful stabilization." Even Chile did not reduce inflation to OECD levels; rather, it became stuck at a 15–20 percent step (annually). Israel and Mexico are stuck at the same step. In the latter cases, however, stabilization is supported by high domestic real interest rates and, in the case of Israel, by an appreciated currency and a low level of economic activity. These phenomena indicate that stabilization affects the real sector adversely. In Chile, however, the low inflation step has not generated distortions. When reference is made to the length of time required to stabilize, the goal is not a full reduction of inflation but rather a "Chilean low inflation step."

Notes

1. This paper is based on research on high-inflation economies in Latin America (Kiguel and Liviatan 1988, 1990a and 1990b). These countries include Argentina, Brazil, Chile, Mexico and Uruguay. Israel has been added here because it is also high-inflation. For a table summarizing of the main features of the stabilization programs, see the appendix.

2. This is an extended version of Calvo and Fernandez (1983).

3. The expected and actual rates of inflation are assumed to be equal.

4. "Tough" can also mean ability to commit.

5. The characterization of the optimal adjustment path (in a successful stabilization) of a tough policy-maker is the subject of current research by Alex Cukierman and Nissan Liviatan.

6. The one exception is the successful Brazilian program in the sixties, where a sustained flow of long-term inflows of capital financed the deterioration in the current account and the expansion in output.

7. Calvo (1986) explains how these aspects of temporariness can be generated in a cash-in-advance model. For alternative explanations, see Kiguel and Liviatan (1990a).

8. For a more comprehensive comparison of ERBS and MBS, see Kiguel and Liviatan (1990a).

9. Another reason relates to the difficulty of dealing with the increase in the demand for money that results from the disinflation.

10. Typically, heterodox ERBS produces an initial recession. However, it is usually small relative to that observed under MBS, as indicated by the sample of countries studied here and as observed in the industrial countries.

11. However, the high domestic interest rates in Mexico suggest that it did not solve the credibility problem with regard to exchange rate policy.

12. For an article on the populist economies in Latin America, see Dornbusch and Edwards (1989).

13. Dornbusch (1990b) offers a different view of this issue. He suggests starting the stabilization with an undervalued fixed exchange rate (as a cushion) and then "very soon" moving to an adjustable crawling peg to maintain competitiveness. While the latter part is certainly a desirable goal, it may be very hard to implement the proposed policy when people have pessimistic expectations about the evolution of the program. The initial undervaluation of the exchange rate will then be eroded quickly, and the adjustable peg will not provide an anchor for inflation.

14. These ideas are formalized in Cukierman and Liviatan (1991).

References

Alesina, A., and A. Drazen. 1989. "Why Are Stabilizations Delayed?" Mimeo. Howard University. Washington, D.C.

Barro, Robert J., and David B. Gordon. 1983. "Rules, Discretion and Reputation in a Model of Monetary Policy." *Journal of Monetary Economics* 12:101–21.

Blejer, Mario, and Nissan Liviatan. 1987. "Fighting Hyperinflation: Stabilization Strategies in Argentina and Israel, 1985–86." *IMF Staff Papers* 34:409–38.

Calvo, Guillermo A. 1986. "Temporary Stabilization: Predetermined Exchange Rates." *Journal of Political Economy* 94:1319–29.

Calvo, Guillermo A., and Roque Fernandez. 1983. "Competitive Banks and the Inflation Tax." *Economics Letters* 12:313–17.

Corbo, Vittorio, and Andres Solimano. 1990. "Chile's Experience with Stabilization Revisited." Mimeo. World Bank. Washington, D.C.

Cukierman, Alex, and Nissan Liviatan. 1991. "Optimal Accommodation by Strong Policy Makers under Incomplete Information." *Journal of Monetary Economics* 27 (February):99–127.

Dornbusch, Rudiger. 1990a. "Credibility and Stabilization." Mimeo. Massachusetts Institute of Technology. Cambridge, Mass.

———. 1990b. "Policies to Move from Stabilization to Growth." Mimeo. Massachusetts Institute of Technology. Cambridge, Mass.

Dornbusch, Rudiger, and Sebastian Edwards. 1989. "The Macroeconomics of Populism in Latin America." Working Paper Series (WPS) 316. World Bank. Washington, D.C.

Edwards, Sebastian, and Alejandra Cox Edwards. 1987. *Monetarism and Liberalization: The Chilean Experiment.* Cambridge, Mass.: Ballinger.

Fundacíon de Investigaciones Económicas Latinoamericanas. Various issues. *Indicadores de Coyuntura* (Buenos Aires).

Instituto Brasileiro de Economia/Fundaçao Getulio Vargas. Various issues. *Conjuntura Econômica* (Rio de Janeiro).

Kiguel, Miguel, and Nissan Liviatan. 1988. "Inflationary Rigidities and Orthodox Stabilization Policies: Lessons from Latin America." *The World Bank Economic Review* 2:273–98.

———. 1990a. "The Business Cycle Associated with Exchange Rate Based Stabilizations." Mimeo. World Bank. Washington, D.C.

———. 1990b. "The Inflation Stabilization Cycles in Argentina and Brazil." Working Paper Series (WPS) 443. World Bank. Washington, D.C.

Krugman, Paul. 1979. "A Model of Balance of Payments Crises." *Journal of Money, Credit and Banking* 11:311–25.

Pazos, Felipe. 1972. *Chronic Inflation in Latin America.* New York: Praeger.

Ramos, Joseph. 1986. *Neoconservative Economics in the Southern Cone of Latin America, 1973–1983.* Baltimore, Md.: Johns Hopkins University Press.

Romer, Paul M. 1989. "What Determines the Rate of Growth and Technological Change?" Working Paper Series (WPS) 279. World Bank. Washington, D.C.

Sachs, Jeffrey D. 1987. "Trade and Exchange Rate Policies in Growth-Oriented Adjustment Programs," 291–325. In Vittorio Corbo, Morris Goldstein and Moshin Khan (eds.), *Growth-Oriented Adjustment Programs.* Washington, D.C.: International Monetary Fund and World Bank.

Sargent, Thomas J. 1982. "The End of Four Big Inflations," 41–97. In R. E. Hall (ed.), *Inflation: Causes and Effects.* Chicago, Ill.: Chicago University Press.

Viana, Luis. 1988. "The Stabilization Plan of 1968." Mimeo. Banco Central de Uruguay. Montevideo.

Vickers, John. 1986. "Signalling in a Model of Monetary Policy with Incomplete Information." *Oxford Economic Papers* 38:443–55.

Wicker, Elmas. 1986. "Terminating Hyperinflation in the Dismembered Habsburg Monarchy." *American Economic Review* 76:350–64.

Appendix. Characteristics of the Stabilization Programs Included in the Study

Program term or quarter	When did it finish?	Exchange rate — fixed versus crawl	Income policies	Multiple or unified	Fiscal
1980s					
Israel 3rd Q. 1985	Not yet	Fixed with infrequent adjustments	Yes (shock)*	Official and parallel	Big initial adjustment
Austral 3rd Q. 1985	3rd Q. 1986	Fixed	Yes (shock)	Official and parallel	Large transitory adjustment
Cruzado 1st Q. 1986	4th Q. 1986	Fixed	Yes (shock)	Official and parallel (large premium)	No adjustment
Mexico 1st Q. 1988	Not yet	Fixed (1st year), then crawl	Yes (small shock)	No	Yes, main adjustment prior to progress
1970s Tablitas					
Chile 3rd Q. 1976	3rd Q. 1982	Crawl, then pre-announced, then fixed	No	Unified	Yes
Uruguay 4th Q. 1978	4th Q. 1982	Pre-announced	No	Unified	Yes
Argentina 4th Q. 1978	1st Q. 1981	Pre-announced	No	Unified	Moderate stable budget deficit
Argentina 3rd Q. 1973	2nd Q. 1975	Fixed	Yes	Three exchange rates	Expansionary
1960s					
Argentina 2nd Q. 1967	3rd Q. 1970	Fixed	Yes (gradual)	Unified exchange rate	Fiscal adjustment
Brazil 2nd Q. 1964	3rd Q. 1968	Fixed w/ step devaluation	Yes (gradual)	Official and parallel	Fiscal adjustment
Uruguay 2nd Q. 1968	1st Q. 1972	Fixed	Yes (shock)	Official and parallel	Fiscal preceded deterioration later on
1950s					
Argentina 3rd Q. 1959	2nd Q. 1962	Fixed	No	Unified exchange rate	Initial adjustment deteriorated later on

* A shock usually includes a simultaneous freeze of wages, prices and the exchange rate.
Source: The authors.

Initial reserves (months of imports)	Reduction in inflation		Commercial policy	Preceded by monetary fiscal measures	Termination shock or gradual	Initial inflation (average 12 months prior to program)	Preceded by maxi-devaluation
	from	to					
3.2	21.1	6.1	No special	No		327.7	Yes
5.3	24.9	2.6	No	No	Gradual	1082.4	Yes
10.4	11.1	1.7	No	No	Shock	237.2	No
12.4	8.2	2.6	Trade and capital account liberalization	Fiscal adjustment	Not yet	131.8	Yes
2.6	11.2	6.5	Trade, capital account liberalized	Yes	Shock	249.37	Yes
5.9	3.4	4.5	Liberalized trade and capital accounts	Preceded by small fiscal adjustment	Shock	42.3	No
16.7	8.1	8.6	Yes	Yes	Shock	180.7	No
3.5	5.7	0.8	No	No	Shock	75.4	No
1.9	2.5	2.7	Incentives for capital inflows	No	Gradual	27.4	Yes
0.9	6.4	4.2	No	No	Gradual and successful	96.3	Yes
4.9	9.5	1.9	No	Yes 6 months earlier	Shock	163.0	Yes
5.7	9.5	1.9	Incentives for foreign investment	Yes (IMF program 6 months before)	Gradual	136.1	Yes

Comment

Rudiger Dornbusch

The research project of Miguel Kiguel and Nissan Liviatan on high inflation and stabilization has added in important ways to our understanding of what the right questions are and what the right answers might be (Kiguel and Liviatan 1988, 1989 and 1990a and b). I say cautiously what the right answers "might" be because I remain unconvinced of the basic thrust of their research: playing games of seigniorage and credibility. There are other stories that are as plausible and at least as consistent with the evidence.

Seigniorage

To start with, I would like to comment on the central role of seigniorage in much of the credibility-based literature on high inflation. Ever since the work of Bailey (1956), it ought to be obvious that thinking of high and extreme inflation in terms of optimal seigniorage is misdirected. Rather, attention should be paid to the experience of Argentina or Peru, for example, where the situation got entirely out of hand, with fiscal collapse and demonetization chasing each other in ever-accelerating rounds.

It is true that money creation is ultimately behind the high or extreme inflation. Even small deficits can produce extravagant rates of inflation in economies where demonetization has reached very extreme proportions. That does not mean there is anything optimal or optimizing at work. It might be more appropriate to view extreme inflation as an unstable process (Dornbusch, Sturzenegger and Wolf 1990).

The Key Questions

Kiguel-Liviatan ask three central questions:

- Is it preferable to learn to live with inflation?
- What is the explanation for the phenomenon of unsustainable growth during stabilization?
- What were the causes of the failures of stabilization, and why is successful stabilization such a lengthy process?

The authors vigorously reject the notion that living with inflation is a stable mode. In their view, it is an arrangement that postpones the ultimate costs but does not avoid them; in fact, it may make matters worse. Here it is necessary to ask for more evidence in support of that assertion. Consider, for example, Brazil in the period 1955–80. Real growth averaged 8.5 percent, and inflation came to an average of 40 percent. Where are the costs?

Kiguel-Liviatan will argue that the costs can be seen in the 1970s—in the form of inflation and stagnation. However, in the 1980s many countries experienced inflation in the aftermath of the oil and debt shocks and in the transition to democracy. Brazil was unusually careless with its system of indexation. There is a lesson here, and it surely must be that indexation systems must exempt real shocks, not that indexation is per se an unstable system. It must also be asked whether countries that did not have formal indexation systems found a better way of solving the problem of falling real wages in the face of adverse shocks. It is my impression that few did; the only difference with explicit indexation is the greater transparency of the process.

On the remaining two questions—the growth surges that occur with failing stabilization programs and the lengthy process of consolidating successful attempts—the authors conclude as follows:

> To a large extent the answers to the foregoing questions seem to hinge on two issues related to the credibility of the stabilization effort—will policy-makers sustain the fiscal policies, and will they have the resolve to uphold the nominal anchors of the system?

I do not share their confidence in "credibility gaps" being the all-around explanation for the failures. That explanation is too vacuous. According to their argument, anything that fails does so because there was no credibility, anything that succeeds does so because the commitment was credible. The European experience with disinflation does not suggest there was any credibility bonus at work. Nor is there evidence of a credibility bonus in the European stabilizations of the 1920s (Webb 1989; Siklos 1990; and Wicker 1986). All the evidence suggests it took quite a while for the reforms to become part of everyday life because of the expectation of a return to stability, as reflected in the interest rates.

This example accords with the Kiguel-Liviatan story. The authors argue that credibility needs to be cultivated over time, established if necessary by a showdown or two; it does not materialize at the first sight of a balanced budget. Their main assertion is that governments must seek a confrontation to establish their credentials because economic agents, hardened by the failed stabilizations of the past, will not believe that anything has changed fundamentally unless their noses are bloodied.

If the credibility perspective is seen as a hypothesis about how governments actually behave, it leads to the question of what kind of regime is more likely to enjoy low inflation. One possibility is to compare economies that view stability

as a public good and reward stewardship. Victorian Britain may have been a case in point. The alternative is long-lived governments for which the pay-off on the investment in credibility can be reaped over many years. That alternative helps explain why much of Latin America today cannot make progress: governments are short-lived, and the notion of public goods is not high on the agenda. It also suggests that control of inflation will not succeed because the necessary investments will not take place. That situation necessitates a look in a different direction.

The credibility battle would seem to be the strategy of last resort. More direct means would draw on two elements of strength. The first is a national unity government that, by its nature, facilitates the adoption of economic measures and lends some plausibility to their persistence. It is worth remembering that many successful stabilizations were in fact the product of a national unity effort or special powers, contrary to what the war of attrition model suggests. However, it is also likely that the quality of the reforms has a bearing on credibility. Anything that takes the form of emergency measures, without follow-up, cannot last. In contrast, broad-based reforms of the budget that assure balance with moderate taxation and cost-effective spending levels will inspire confidence in continuity. Thus the successful experiences might be interpreted not in terms of the decisive showdown, of the recession that taught the lessons. Rather, they might be interpreted in terms of the political compromise and economic modernization that made adjustment last.

The reason this alternative should be seriously considered is that the credibility battle need not succeed. It is altogether plausible that a government that tries to establish just how tough it is will find itself losing political support and going under. Avoiding a key battle over immediate credibility and spending the political capital to broaden the reforms (even with moderate and rising inflation) seem preferable to losing the battle early on.

Nominal Anchors

The Kiguel-Liviatan research seems to suggest that exchange rate-based programs are prone to an initial boom period, followed by overvaluation and ultimate collapse. Money-based programs, in contrast, do not run into the overvaluation problem and therefore are not doomed.

It is immediately obvious that the Brazilian program of 1986 cannot serve as the benchmark for anything: the budget deficit worsened radically, and wages were raised sharply by law as part of the stabilization. Leaving out that extreme experience, what other cases are there? Mexico pursued an exchange rate-based program, and so did Israel. Mexico is still waiting for the growth boom, and Israel has run out of steam. Clearly here there is no common pattern.

The most recent experiments in Argentina, Brazil and Peru involve some mixture of exchange rate targeting and money targeting. They are singularly unsuccessful in that the real exchange rates have become vastly overvalued while real incomes are declining. Strangely, even with the budgets balanced, inflation has continued at very high rates month after month. One explanation is that the trade deficits produced by the monetization have kept inflation alive, another that inflation has had extraordinary day-to-day inertia that has been hard to eliminate except with an even more massive recession or, my preferred answer, with a far more aggressive fiscal effort involving realistic real exchange rate and incomes policies. Incomes policy has been given too little credit for the role it played in Mexico and Israel, the two countries that effected successful stabilizations in economies that did not suffer extreme inflation (see also Artstein and Sussman 1990).

Mexico and Israel did stop inflation without the trauma of a deep recession. Israel did not go further with deregulation and other supply-side measures and may be bogged down by its large government, including defense, and high level of taxation. In Mexico, by contrast, real wages are rising, and growth is now picking up. With supportive capital inflows there is a serious possibility that inflation may only be moderate and growth substantial. The credibility, I would argue, comes from the accomplishment of the reform, not from a decisive recession showdown.

Competition

In many industrial countries and the developing world alike, control of inflation has always been a question of when, after things have gotten out of control, the next recession has to be staged. Something is missing. A better system would put far more weight on competition and far less on the deliberate use of booms and recessions. The labor markets are insufficiently competitive to play their role; in fact, in Britain, for example, they are entirely impervious to national inflation or nominal income targets except at peak unemployment levels. Only countries with a substantial degree of incorporation seem to succeed in maintaining low inflation, and even there unemployment plays a key role (Calmfors and Driffill 1988).

The Kiguel-Liviatan emphasis on credibility, or more broadly on having a policy rather than poorly predictable opportunistic reactions, is appropriate as one ingredient for successful stabilization. I suspect that far more competitive or more corporatist labor markets—the extremes—are additional elements. That point leads back to incomes policy as one of the pieces of stabilization, certainly in the transition but perhaps also in a TIPS form after disinflation has succeeded.

Notes

1. On the issue of credibility see Persson (1988), Persson and Tabellini (1989), Barro (1983), Blackburn and Christensen (1989) and Sargent (1982) and the critical assessment in Eichengreen (1986). See also Dornbusch, Sturzenegger and Wolf (1990).

2. On the war of attrition see Alesina and Drazen (1990).

References

Alesina, A., and A. Drazen. 1990. "Why Are Stabilizations Delayed?" Mimeo. Harvard University. Cambridge, Mass.

Artstein, Y., and Z. Sussman. 1990. "Wage Policy During Disinflation: The Israeli Stabilization." *Economic Review*, Bank of Israel (Research Department) (64)(January):1–36.

Barro, R. 1983. "Inflationary Finance under Discretion and Rules." *Canadian Journal of Economics* 16 (1):1–16.

Bailey, M. 1956. "The Welfare Cost of Inflationary Finance." *Journal of Political Economy* 64 (2)(April):93–110.

Blackburn, K., and M. Christensen. 1989. "Monetary Theory and Policy Credibility: Theories and Evidence." *Journal of Economic Literature* 27 (1)(March):1–45.

Calmfors, L., and J. Driffill. 1988. "Bargaining Structure, Corporatism and Macroeconomic Performance." *Economic Policy* 6 (April):14–61.

Dornbusch, R., F. Sturzenegger and H. Wolf. 1990. "Extreme Inflation: Dynamics and Stabilization." *Brookings Papers on Economic Activity* (forthcoming).

Eichengreen, B. 1986. "Rational Expectations and Inflation. Book Review." *Journal of Economic Literature* 24 (3)(December).

Kiguel, M., and N. Liviatan. 1988. "Inflationary Rigidities and Orthodox Stabilization Policies: Lessons from Latin America." *World Bank Economic Review* 2 (1)(September):273–98.

———. 1989. "The Old and the New in Heterodox Stabilization Programs: Lessons from the Sixties and the Eighties." Mimeo. World Bank. Washington, D.C. October.

———. 1990a. "The Inflation-Stabilization Cycles in Argentina and Brazil." Mimeo. World Bank. Washington, D.C.

———. 1990b. "Some Implications of Policy Games for High Inflation Economies." Mimeo. Country Economics Department, World Bank, WPS 379. Washington, D.C.

Persson, T. 1988. "Credibility of Macroeconomic Policy: An Introduction and a Broad Survey." *European Economic Review* 32:519–32.

Persson, T., and G. Tabellini. 1989. "Macroeconomic Policy, Credibility and Politics." Unpublished manuscript. University of California at Los Angeles. Los Angeles.

Sargent, T. 1982. "The Ends of Four Big Inflations." In R. Hall (ed.), *Inflation*. Chicago: National Bureau of Economic Research (NBER) and University of Chicago Press.

Siklos, P. 1990. "Interpreting a Change in Policy Regimes: A Reappraisal of the First Hungarian Hyperinflation and Stabilization; 1921–1928." Mimeo. Wilfred Laurier University. Waterloo, Ontario.

Webb, S. 1989. *Hyperinflation and Stabilization in Weimar, Germany*. Oxford: Oxford University Press.

Wicker, E. 1986. "Terminating Hyperinflation in the Dismembered Habsburg Monarchy." *American Economic Review* 76:350–64.

Economic Adjustment and Investment Performance in Developing Countries: The Experience of the 1980s

Luis Serven and Andrés Solimano

Developing countries experienced a significant decline in investment rates and a parallel slowdown in growth in the eighties.[1] Investment fell as part of the macroeconomic adjustment to the decline in the availability of external financing after the debt crisis, a decline that was not compensated for by an adequate increase in domestic savings. However, the drop in external financing was not the only factor behind the slowdown in investment. In some instances, the adjustment measures themselves were a factor. For example, the required fiscal adjustment, which was oriented to correct external imbalances and reduce inflation, often took the form of a decrease in public investment—in particular, in public projects that might have complemented private investment. The large resource transfer needed to service the foreign debt of most developing countries also discouraged private investment, as part of the future returns on investment accrued to creditors in the form of debt repayments.

The adjustment effort typically involved changes in economic incentives. However, very often they did not produce a sizable investment response, thus preventing an effective transition from adjustment to resumed growth. In many cases, the recovery of private investment was slowed by a lack of confidence in the permanence of the policy measures and a high level of uncertainty about the future macroeconomic environment—the causes of which could often be traced to the burden of the external debt service, which threatened the success of stabilization.

This chapter investigates the role different factors played in the investment performance of developing countries in the eighties, drawing on the experience of selected countries as described in the theoretical and empirical literature and on an econometric analysis of investment using a panel data set of time series information for a group of 15 developing countries. Moreover, some lessons that can be applied to the

design of growth-enhancing adjustment policies so as to bridge the gap between adjustment and growth were to be drawn from this experience.

The chapter is organized as follows. The next section presents the empirical record of investment in developing countries in the 1970s and 1980s. It explores the response of private and public investment to external shocks, macroeconomic adjustment and structural reform by comparing three groups of selected countries: Latin American countries that pursued structural reform and liberalization (Chile, Mexico and Bolivia); countries that did not pursue such ambitious reforms and that suffered severe macroeconomic instability (Argentina and Brazil); and the outward-oriented East Asian countries that adjusted to the adverse external shocks of the 1980s while maintaining high growth, low inflation and, in general, a remarkable degree of macroeconomic stability (Republic of Korea, Singapore and Thailand).

The subsequent section reviews, briefly, the theoretical and empirical literature on macroeconomic policies and private investment, focusing on the effects of monetary, fiscal and exchange rate policies and emphasizing some economic and institutional features specific to developing countries (e.g., intervention in the financial market, possible complementarities between public and private investment and high reliance on imported capital goods) that affect the transmission mechanisms through which standard macro policies affect private investment.

The recent literature on credibility, uncertainty and irreversibility in investment decisions is explored in the fourth section, in order to highlight the main determinants of the investment response to a given set of economic incentives generated by the structural reforms.

An econometric analysis of the determinants of private investment in developing countries using cross-country data

for the period 1975–87 for a selected group of developing countries is presented next. The empirical estimates are used to evaluate the contribution of different factors to the slow-down in investment after 1982.

The conclusions appear in the final section.

Investment in Developing Countries, 1970–88

The Overall Picture

Between 1970 and 1988, investment rates in developing countries exhibited two distinct stages, with the turning point in 1982 (figure 7–1). For 78 developing countries, the average share of investment in gross domestic product (GDP) in constant prices increased from about 22 percent in 1970 to 25 percent in 1981, and for most of this period the investment rates were historically high. With the rise in international real interest rates in 1981 and the onset of the debt crisis in 1982, however, the rate of investment fell sharply. The decline started earlier in the highly indebted countries than it did in other developing countries, and in the former the decline was larger. For most developing countries, with the exception of Asia, a slowdown in growth accompanied the decline in investment (tables 7–1 and 7–2).

The fall in investment was so severe that some countries may not even have been able fully to replace depreciating capital. For example, in Africa the minimum investment needed to replace depreciated capital was estimated at 13

Figure 7–1. Share of Investment in GDP for Developing Countries
(unweighted average)
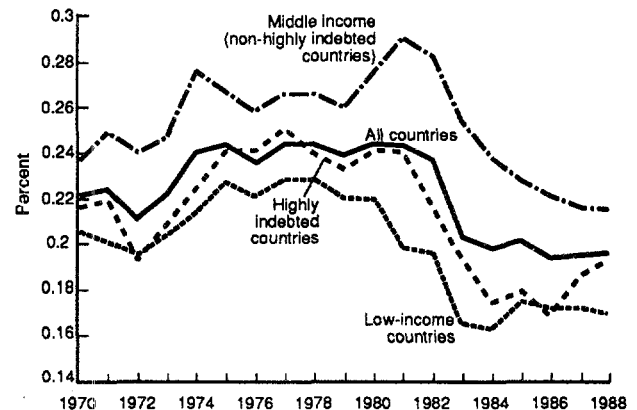
Source: World Bank data.

percent of GDP; in 1987, seven countries in sub-Saharan Africa had investment rates below that level. Similarly, the minimum rate of investment needed to replace capital in Latin America was estimated at 14 percent; in 1987, three countries were below that level (Easterly 1989).

The deficit in the resource balance (that is, the difference between domestic investment and domestic savings) in developing countries was considerably smaller after the 1982 debt crisis as a result of the decline in external financing

Table 7–1. Investment, Saving and Growth in Developing Countries, 1970–88
(percentage of GDP)

Indicator	Country groups	1970–80	1981–82	1983–84	1985–88
Gross domestic investment	All	22.4	24.0	20.2	19.6
(current prices)	Highly indebted	22.8	23.0	18.0	18.4
	Middle-income	25.5	28.6	24.4	21.9
	Low-income	19.7	20.3	17.0	17.4
Gross domestic saving	All	16.1	13.7	13.9	14.9
(current prices)	Highly indebted	20.3	20.1	19.8	20.2
	Middle-income	18.3	17.5	17.7	17.5
	Low-income	12.5	7.6	8.0	9.9
Resource balance deficit	All	6.4	10.3	6.2	4.6
(current prices)	Highly indebted	2.5	2.9	-1.7	-1.5
	Middle-income	7.2	11.1	6.7	4.0
	Low-income	7.2	12.7	8.9	7.5
Gross domestic investment	All	23.4	24.1	20.6	19.6
(constant prices)	Highly indebted	23.1	22.3	17.1	16.3
	Middle-income	25.7	28.6	24.9	22.1
	Low-income	21.5	20.7	17.5	18.0
Rate of growth of real GDP	All	4.7	2.7	1.8	3.3
(percentage per year)	Highly indebted	5.0	-0.3	-0.4	2.7
	Middle-income	6.1	4.5	3.9	3.2
	Low-income	3.5	2.5	0.5	3.5

Source: World Bank data.

Table 7–2. Growth and Investment

(percent)

Region	Real GDP growth 1965–88	Real GDP growth 1980–88	Investment ratio 1965–88	Investment ratio 1980–88
Sub-Saharan Africa	3.3	0.5	17.6	15.9
Asia	6.3	7.4	27.7	31.1
Europe/Middle East/ North Africa	4.6	2.8	28.4	27.3
Latin America and Caribbean	4.5	1.6	19.7	17.9

Source: International Monetary Fund (1989, Table 15).

(table 7–1). However, the decrease in the external deficit was not matched by an offsetting increase in domestic savings, so that it was reflected almost entirely in reduced investment.

The empirical evidence from data for a set of 29 developing countries for which a breakdown between public and private investment was available shows that the share of private investment in GDP in current prices was relatively stable until 1980 and then declined, followed by a modest recovery after 1985 (figure 7–2).[2] The decline was larger in the highly indebted countries than in other countries (figure 7–3). Public investment as a share of GDP rose until 1982 and then fell after 1982, two years later than private investment (table 7–3). Unlike private investment, the rates of public investment declined steadily until 1988.

Private Investment and Macroeconomic Adjustment:
Some Country Stories

The discussion in this section is organized around the behavior of private investment during adjustment in three stylized groups of countries in Latin America and East Asia. The first group, composed of Chile, Mexico and Bolivia, adopted decisive stabilization policies oriented toward the elimina-
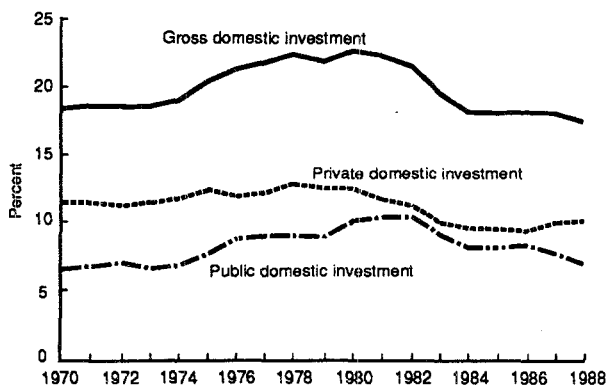
Table 7–3. Public and Private Investment for a Group of 29 Developing Countries, 1970–88

(percentage of GDP at current prices)

Group	1970–80	1981–82	1983–84	1985–88
29 countries				
Total	20.3	22.2	18.8	17.6
Private	12.2	11.7	9.7	9.6
Public	8.2	10.5	9.0	8.0
13 highly indebted countries				
Total	20.1	20.2	15.1	15.2
Private	12.3	10.9	8.1	8.7
Public	7.8	9.2	7.0	6.5

Note: Argentina*, Bangladesh, Bolivia*, Brazil*, Chile*, Colombia*, Costa Rica*, Ecuador*, Guatemala*, Hungary, India, Indonesia, Kenya, Korea, Malaysia, Mexico*, Nigeria*, Pakistan, Peru*, Philippines*, Portugal, Sri Lanka, Thailand, Tunisia, Turkey, Uruguay*, Venezuela*, Zambia and Zimbabwe. The asterisk means highly indebted.
Source: World Bank (1990).

tion of the basic macroeconomic imbalances, together with policies of structural reform, including the liberalization of foreign trade and deregulation of the credit and labor markets along free-market lines. The second group was made up of Argentina and Brazil, two countries that in the 1980s were unable to stabilize their economies and correct the basic macroeconomic imbalances in a sustainable way. They did not attempt comprehensive structural reforms and liberalization of the type adopted by the countries in the first group. The third group, consisting of three East Asian economies—Korea, Singapore and Thailand—adjusted primarily through macro policies and managed to deal with the external shocks and debt crisis of the eighties without sacrificing growth and domestic macroeconomic stability.

Adjusting cum liberalizing countries in Latin America: *Chile, Mexico and Bolivia.* These Latin American countries shared several common features regarding their macroeconomic policies and structural reforms. The former entailed

Figure 7–2. Public and Private Investment for 29 Countries

(unweighted average, percent of GDP)

Source: World Bank data.

Figure 7–3. Public and Private Investment for 13 Highly Indebted Countries

(unweighted average, percent of GDP)
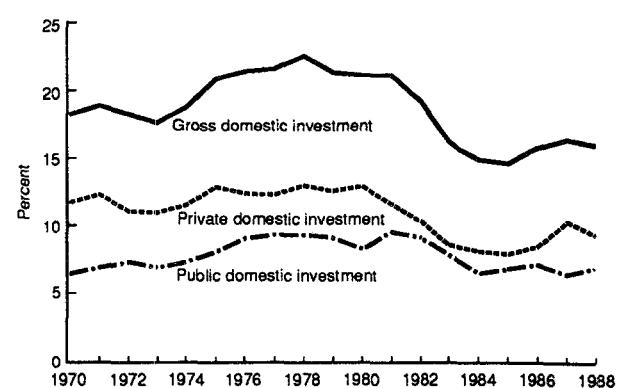
Source: World Bank data.

Figure 7–4. Investment as a Percentage of GDP in Chile, Mexico, and Bolivia
(real)
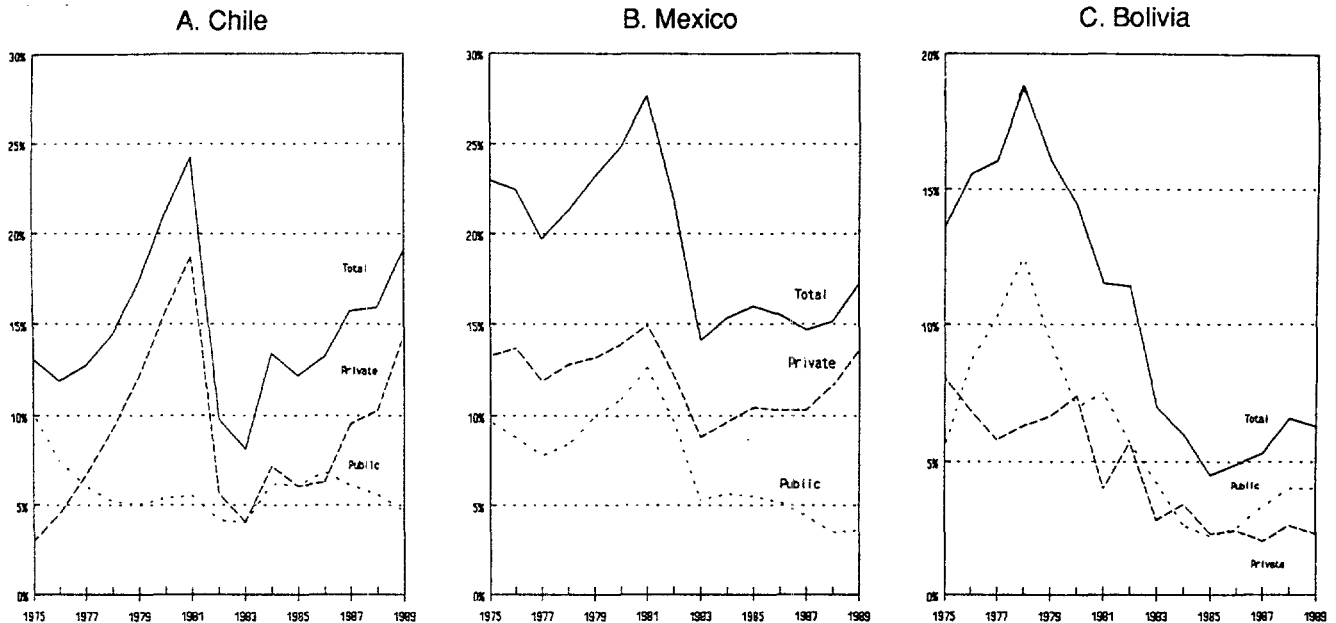
Source: World Bank data.

both real depreciation of the exchange rate and restrictive fiscal and monetary policies to reduce the large current account deficits and high rates of inflation existing at the time the reforms started to be applied.[3]

The structural reforms the three countries implemented were trade liberalization, financial deregulation, privatization and development of greater flexibility in the labor market. The degree, timing and results of these policy reforms varied in each country, although all three shared a general free-market orientation.

Following the swings in the world economy in the 1980s, the three countries suffered the cycle of over-borrowing, a sharp cut-off in foreign lending and the onset of the debt crisis. The pattern of investment followed the "debt cycle" (figure 7–4). Public investment in Mexico and private investment in Chile increased sharply during the boom of the late seventies and early eighties that was led by external borrowing. In 1982, when access to external lending was abruptly cut off and countries were forced to reduce their current account deficit rapidly, investment fell sharply. Thus, basically the adjustment was carried out by cutting the demand for investment rather than by increasing domestic savings.

Investment in Chile: The "mature" reformer. The experience of Chile is particularly interesting in several respects. First, it started its reforms earlier—in the mid-1970s—than the countries in the other two groups did, and it therefore provides a better "laboratory experiment" for assessing the impact of liberalization on private investment. Second, at the time the reforms started to be applied, the Chilean economy exhibited large macroeconomic imbalances in the

form of high rates of inflation (over three digits by the mid-1970s) and a large fiscal deficit. Achievement and maintenance of low and stable inflation remained a top priority in economic policy. In addition, the commitment to structural reforms along free-market lines remained quite strong,[4] and the democratic administration that took office in early 1990 reiterated the commitment to reform.

The response of private investment to the stabilization cum liberalization program of the mid-1970s was strong. The share of private investment in GDP rose from 5.3 percent in 1971–75 to 11.2 percent in 1976–81. In contrast, public investment fell from 10.6 percent in 1971–75 to 5.8 percent in 1976–81.

Several hypotheses (and some puzzles) can be offered to explain the response of private investment. One is the importance of the political economy. The country went from the "Chilean Road to Socialism" program of President Salvador Allende in 1970–73, which involved large-scale nationalization and deeper land reform, to a radical free-market experiment launched in 1975 under the military regime. The new economic program assured full respect for private property, deregulation of the markets and tight political control of the defeated left and of a militant working class very active under Allende. The private sector responded forcefully to the new program. The reduction in public investment apparently crowded-in private investment because a large part of the increase in public investment in the period 1971–75 corresponded to enterprises that had just been nationalized.

One of the puzzles in the strong response of private investment in that period is that it coincided with a period of

120

very high real interest rates—over 25 percent per year in the second half of the 1970s. Ex-post, however, given the massive rescue operation the government undertook in 1982–83 with respect to the internal and external debt the private sector had acquired previously, the private sector ended up paying an effective real interest rate that was much lower.

In the 1980s private investment followed closely the cycles of economic activity. It boomed in the early eighties, although its composition tilted heavily toward the non-traded sectors—housing, structures and commercial buildings—following the real appreciation of the peso that developed at the time. During the crisis of 1982–83, investment fell by more than 10 percentage points of GDP with respect to 1980–81. The subsequent recovery was relatively forceful, and by 1989 private investment had reached its 1980 level. Given the strong performance of the export sector and the very large real depreciation of the exchange rate after 1982 (on the order of 70 percent), it seems that private investment shifted toward the traded goods sector in contrast with the trend in the early 1980s.[5]

Investment in Mexico and Bolivia. Total investment in Mexico fell by 8 percentage points of GDP in the period 1982–89 compared with 1978–81. However, the bulk of the cut involved public investment: the ratio of public investment to GDP fell by nearly 5 percentage points in 1982–89 over 1978–81. Nevertheless, it is important to recognize that the level of public investment during the period 1978–81 had reached a high, and probably unsustainable, level following the oil boom.[6] Private investment fell moderately between 1982–85 and then, despite the high real interest rates, started to recover, a shift that coincided with the implementation of the reforms.[7]

In Bolivia, investment declined steadily during the 1980s. The first half of the decade was characterized by macroeconomic turbulence that ended up in the hyper-inflation of 1984–85. Then, in August 1985 the government introduced a sharp and successful program to stabilize inflation, which went from the five-digit level of the hyper-inflation to an average of about 20 percent in the second half of the 1980s. The main problem Bolivia experienced in its stabilization cum liberalization effort was a lack of growth and any significant response by private investment in the aftermath of the stabilization (table 7–4).[8]

Lessons from the three experiences. What can be concluded about the effects of adjustment and the implementation of the reforms on the performance of private investment in these economies? The first point is that of diversity. In Chile, private investment reacted forcefully to the reforms in the mid-1970s and recovered relatively fast in the second half of the 1980s after the restoration of macroeconomic stability and the government's reassurance that it was committed to the reforms. In Mexico, the response of private

Table 7–4. Public and Private Investment and Macroeconomic Indicators in Chile, Mexico and Bolivia
(annual averages)

Variable	1978–81	1982–84	1985–89
Chile			
Total investment (% of GDP) (real)	19.3	10.5	15.3
Public investment (% of GDP) (real)	5.3	4.8	5.9
Private investment (% of GDP) (real)	14.0	2.7	9.4
Real GDP growth (%)	7.5	-2.9	6.1
Inflation (GDP deflator, %)	36.0	18.1	21.4
Current account balance (% of GDP)	-8.6	-8.1	-4.7
Foreign debt (% of GDP)	46.2	88.2	105.6
Real exchange rate (1980=100)	102.8	107.6	176.6
Mexico			
Total investment (% of GDP) (real)	24.3	17.2	15.8
Public investment (% of GDP) (real)	10.5	6.9	4.5
Private investment (% of GDP) (real)	13.8	10.3	11.3
Real GDP growth (%)	8.7	-0.4	1.0
Inflation (GDP deflator, %)	22.3	70.2	77.6
Current account balance (% of GDP)	-4.7	0.8	0.6
Foreign debt (% of GDP)	30.8	55.3	63.2
Real exchange rate (1980=100)	103.4	126.5	145.3
Bolivia			
Total investment (% of GDP) (real)	15.7	9.6	4.9
Public investment (% of GDP) (real)	9.4	4.9	2.5
Private investment (% of GDP) (real)	6.3	4.7	2.4
Real GDP growth (%)	0.8	-3.7	0.9
Inflation (GDP deflator, %)	24.1	561.7	2,353.9
Current account balance (% of GDP)	-10.8	-5.5	-8.5
Foreign debt (% of GDP)	93.0	133.6	137.2
Real exchange rate (1980=100)	98.8	70.7	90.1

Source: Investment—elaboration based on Pfeffermann and Madarassy (1991); others—World Bank.

investment to the reforms launched in the mid- to late 1980s was moderate. In Bolivia, private investment remained stagnant, and so did growth in the aftermath of the stabilization and reform.

Second, the experience of these countries in the 1980s shows clearly that the reforms may enhance private investment if they are accompanied by a stable macro environment. Chile in the second half of the 1980s is a good example of how fiscal balance, moderate real interest rates and competitive real exchange rates provide a suitable framework for private investment to respond to the incentives generated by the structural reforms.[9] To the contrary, in the case of Bolivia, where disinflation was consolidated but the fiscal deficit was still high (near 5 percent in 1986–90) and the economy highly dollarized (Morales 1991), the macroeconomic environment was not entirely supportive of a strong recovery of private investment.

A third point is that a favorable private investment response is associated with adequate external financing. All three countries experienced a debt overhang, and they carried out a sizable resource transfer abroad. From simple savings-investment identities it can be concluded that without a corresponding increase in domestic savings, a high level of investment can hardly be achieved. In addition, the foreign debt service acts like an implicit tax on investment.

A fourth point, generally downplayed in the academic literature but one that investors in the real world seem to pay a lot of attention to, is the favorable "business climate" generated by the liberalization.[10] In fact, the privatization measures as well as other liberalizing policies adopted in these countries reflected a renewed faith in free markets and private initiative. The distinctive feature is that governments had come to perceive these principles as the "new engine to growth."

Two non-adjusting cases in Latin America: Argentina and Brazil. In the eighties, Brazil and Argentina stood out in Latin America[11] as clear-cut examples of countries that were unable to stabilize their high inflation, which, in several cases, slid into outright hyper-inflation. Brazil managed to grow at an impressive 7 percent a year between 1940 and 1980, and its development strategy at the time was that of a dirigiste state, supported, in the sixties and seventies, by foreign direct investment and abundant external credits. Brazil used the external borrowing of the seventies largely to finance its ambitious development plans, which required high rates of investment to speed growth. In contrast, Argentina started to experience a noticeable economic decline after the early seventies, a reflection of the slowdown in growth and mounting economic and political instability.

The adverse external shocks of the early eighties and the onset of the debt crisis hit Argentina and Brazil severely. The correction of the external and fiscal imbalances took the form of an acceleration of inflation and slowdown in growth.

Table 7–5. Public and Private Investment and Macroeconomic Indicators in Argentina and Brazil
(annual averages)

Variable	1978–81	1982–84	1985–89
Argentina			
Total investment (% of GDP) (real)	20.3	14.9	11.7
Public investment (% of GDP) (real)	8.0	6.0	4.9
Private investment (% of GDP) (real)	12.3	8.9	6.8
Real GDP growth (%)	-0.3	-0.0	0.5
Inflation (GDP deflator, %)	128.9	396.6	945.7
Current account balance (% of GDP)	-3.3	-3.7	-2.9
Foreign debt (% of GDP)	45.4	70.0	71.7
Real exchange rate (1980=100)	124.1	210.10	251.1
Brazil			
Total investment (% of GDP) (real)	23.1	18.7	17.6
Public investment (% of GDP) (real)	8.9	7.0	6.7[a]
Private investment (% of GDP) (real)	14.2	11.7	13.7[a]
Real GDP growth (%)	3.7	0.8	4.9
Inflation (GDP deflator, %)	73.0	154.1	780.1
Current account balance (% of GDP)	-4.5	-3.1	-0.2
Foreign debt (% of GDP)	28.5	43.5	36.4
Real exchange rate (1980=100)	87.6	89.1	97.3

a = 1985–88.

Source: Investment—elaboration based on Pfeffermann and Madarassy (1991); others—World Bank.

In contrast with Mexico and Bolivia (Chile had undertaken its structural reforms in the mid-1970s), domestic authorities in Argentina and Brazil did not seize the opportunity of the crisis to attempt comprehensive structural reforms in the public sector, the trade regime or other areas. The governments devoted the bulk of their energy to fighting inflation and managing their large external debt.[12]

It is not surprising to find that the investment record of countries such as Argentina and Brazil was poor in the 1980s. However, there are some differences in their experiences. As table 7–5 illustrates, investment rates dropped far more in Argentina than in Brazil. In fact, total investment in Argentina in the period 1985–89 was 8.6 percentage points of GDP lower than in 1978–81; this drop in total investment decomposes into a reduction in private investment of 5.5

Figure 7–5. Investment as a Percentage of GDP In Argentina and Brazil
(real)

A. Argentina

B. Brazil
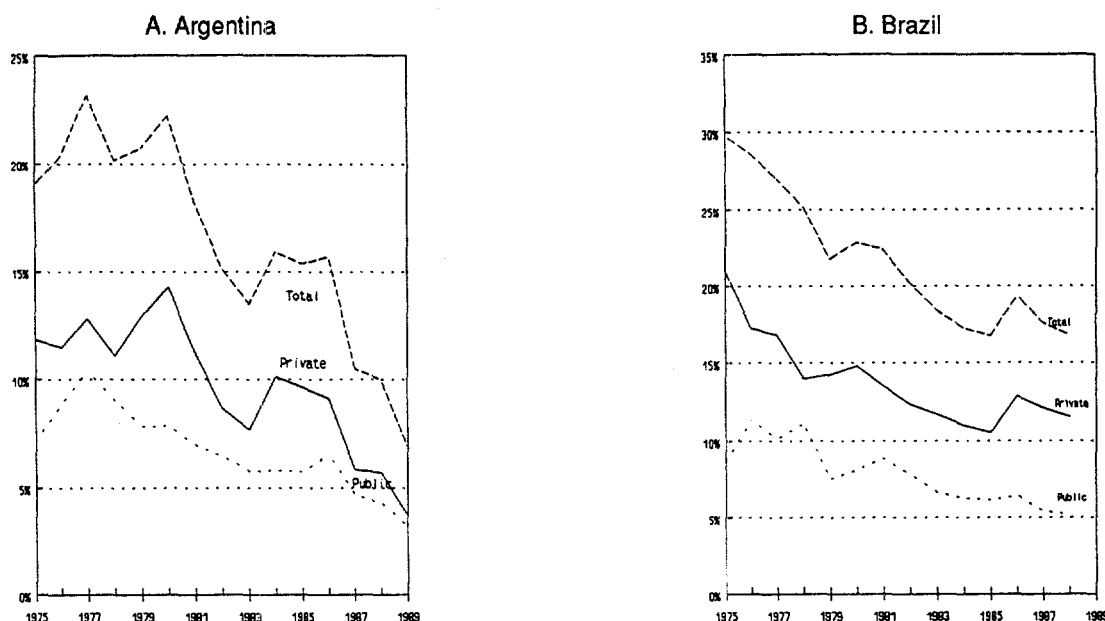
Source: World Bank data.

percentage points of GDP and a cut in public investment of 3.11 percentage points. Moreover, the decline in investment persisted (on average) in the second half of the 1980s, in contrast to the experience of other Latin American countries. In Brazil the drop in total investment was less serious than that in Argentina—its share in GDP was 5.4 percentage points lower in 1985–89 than in 1978–81—while private investment started to recover after 1984, although public investment was still below its pre-crisis level.

Argentina provides almost a textbook (and dramatic) case study of protracted economic instability acting as a powerful deterrent to private investment. As figure 7–5 shows, the downward trend in private investment—as well as in public investment—had already started in Argentina in the mid-seventies. Clearly, the preference for taking resources abroad rather than investing them at home was at work before the debt crisis, and to a large extent that factor was responsible for the absence of recovery afterwards. On top of that lack of private investment, the data show a decline in public investment in the 1980s, a phenomenon tied to the fiscal crisis that Argentina was suffering from.[13]

Brazil experienced the same downward trend in public investment starting in the early eighties. That reduction was part of the fiscal response to the reduced external financing as well as to the enlarged burden posed by the internal public debt.

Macroeconomic stability in Southeast Asia: Korea, Singapore and Thailand. In stark contrast to several of the Latin American countries, Korea, Singapore and Thailand have had remarkable records of macroeconomic stability

(table 7–6). In addition, they have had high-growth, outward-oriented but not laissez-faire economies. The distribution of income has been much more equitable in Southeast Asia than in Latin America.[14]

Since the mid-sixties Korea has been a high growth country, strongly oriented toward the expansion of manufacturing exports. The distribution of income has been relatively egalitarian,[15] although at the political level authoritarian military regimes governed the country from the sixties until 1987.

The high rates of investment in Korea were guided by a series of five-year economic plans. The government intervened actively to control, among other things, the allocation of credit to firms, with an overwhelming focus on exports. The close link between government and business in turn created large conglomerates and a high degree of industrial concentration.[16] The trade regime was far from liberal, with both tariffs and quantitative restrictions in place, although in the eighties the government relaxed these barriers. Exchange rate policy was oriented to maintaining the external competitiveness of Korean exports, although some episodes of real appreciation took place (for example, in the late 1970s). Korea recovered quickly from the impact of the debt crisis in the 1979–82. In contrast with most highly indebted countries,[17] it was able to reduce its current account deficit after 1982 while restoring a high level of growth, maintaining a low level of inflation and avoiding fiscal imbalances.

The case of Singapore is unique. It is a city-state, with a high growth economy completely open to foreign trade and with (almost) unrestricted capital mobility operating under a fixed exchange rate regime. Per capita income is compa-

Table 7–6. Public and Private Investment and Macroeconomic Indicators in Korea, Singapore and Thailand
(annual averages)

Variable	1978–81	1982–84	1985–89
Korea			
Total investment (% of GDP) (real)	32.6	32.1	30.9
Public investment (% of GDP) (real)	7.6	7.6	6.8
Private investment (% of GDP) (real)	25.0	24.5	24.1
Real GDP growth (%)	5.5	9.7	9.8
Inflation (GDP deflator, %)	21.0	5.1	4.2
Current account balance (% of GDP)	-5.9	-2.3	4.7
Foreign debt (% of GDP)	41.1	48.7	32.6
Real exchange rate (1980=100)	97.7	96.5	112.4
Singapore			
Total investment (% of GDP) (real)	39.3	49.4	39.1
Public investment (% of GDP) (real)	10.1	15.6	12.3
Private investment (% of GDP) (real)	29.1	33.9	26.9
Real GDP growth (%)	9.3	7.8	5.9
Inflation (GDP deflator, %)	6.5	2.9	0.7
Current account balance (% of GDP)	-9.4	-4.7	3.1[a]
Foreign debt (% of GDP)	12.7	9.4	11.6[a]
Real exchange rate (1980=100)	98.6	89.1	105.9
Thailand			
Total investment (% of GDP) (real)	25.9	25.0	24.0
Public investment (% of GDP) (real)	8.5	8.5	6.5
Private investment (% of GDP) (real)	17.5	16.5	17.6
Real GDP growth (%)	6.6	6.1	7.4
Inflation (GDP deflator, %)	9.9	2.4	4.2
Current account balance (% of GDP)	-6.6	-5.1	-2.2
Foreign debt (% of GDP)	25.5	35.2	38.8
Real exchange rate (1980=100)	103.5	93.3	120.0

a = 1985–89

Source: Investment—elaboration based on Pfeffermann and Madarassy (1991); others—World Bank.

rable with that of low-income OECD countries, and the distribution of income is considered to be relatively even. Singapore did not suffer a debt crisis in the eighties and has been running current account surpluses since the mid-1980s in the context of its high growth and very low inflation.

Thailand borrowed in the late seventies and adjusted gradually afterwards, taking advantage of its good record of creditworthiness (Corden 1990). In the eighties, it reduced the deficit on the current account within a macro environment of sustained growth, while maintaining inflation at low levels and holding the fiscal budget in check. Thailand's performance is certainly a case of successful handling of the adverse foreign shocks without experiencing a macroeconomic crisis and domestic instability.

What about investment in these economies (figure 7–6)? Two main features are worth noting. First, Korea and Singapore in particular were high investment, high growth economies. In the period 1978–88, Korea sustained an average rate of investment near 30 percent of GDP and grew at an annual average rate of 6.5 percent. Singapore invested, on average, around 40 percent of GDP over the same period and grew at an average annual rate of 7.5 percent. Investment was not immune to the cycles of economic activity experienced in these economies in the eighties, however, and the data show some volatility in investment. A judgment on the relative efficiency of capital in these countries requires some difficult international comparisons, although the implied incremental capital output ratios (ICORs) do not look particularly low (Larrain and Vergara 1991).

Second, the data show that in these countries private investment was more important by far than public investment as a share of total investment. In Korea, around three-fourths of total investment was private; in Singapore and Thailand, the share of private investment in total capital formation was around two-thirds. These countries offer interesting examples of strong private sectors backed by active, growth-oriented governments.

An overall assessment. Some conclusions emerge from the diversity of experiences examined above.

• There are some clear differences in the level and composition of investment between the Latin American and East Asian countries. During the 1980s (and also earlier), rates of investment on the order of 30 percent of GDP and more (for example, 40 percent on average in Singapore) were not unusual in the East Asian countries.[18] Their growth record was also remarkable for the 1980s, with annual average rates on the order of 6.5–7.5 percent. In Latin America, historically the rates of investment were on the order of 20–25 percent, supporting rates of growth of GDP of 5.5–6.0 percent a year.[19] In the 1980s, the average annual rate of growth of GDP decelerated sharply to around 1.5 percent, and the rates of investment centered in the range of 15–18 percent of GDP.[20]

Figure 7–6. Investment as a Percentage of GDP in Korea, Singapore, and Thailand
(real)

A. Korea   B. Singapore   C. Thailand
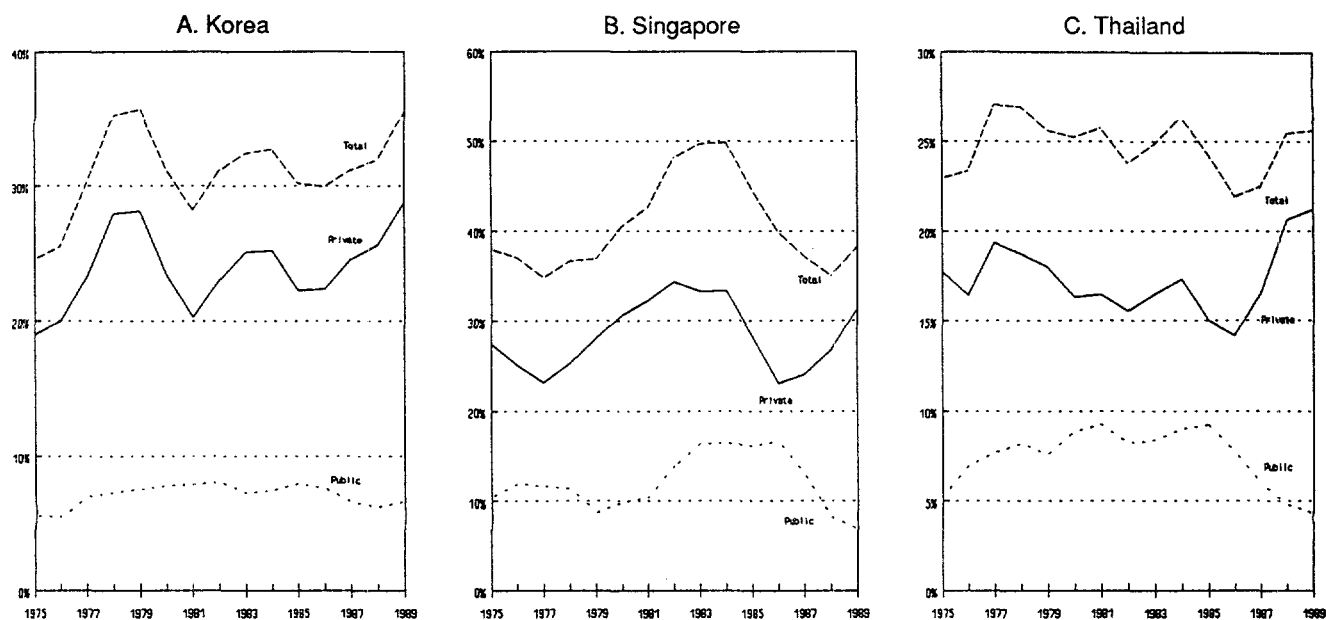
Source: World Bank data.

• The analysis *suggests* that a high degree of macroeconomic stability—defined as low and predictable inflation and external and internal balances—is of paramount importance to ensuring a strong response by private investment to economic incentives. The East Asian cases are good examples. In contrast, in some Latin American countries there is evidence that macroeconomic instability may have been largely responsible for the poor performance of private investment.

• The evidence from Chile, Mexico and Bolivia on the effects of structural reforms (trade liberalization, fiscal reform and privatization) on private investment is mixed. Chile experienced a rapid recovery of private investment in both the late 1970s, following the inception of the reforms, and in the late 1980s when macroeconomic balance was restored, the terms of trade turned favorable and the government affirmed its commitment to the reforms. Mexico also saw a revival of private investment in the late 1980s in spite of high domestic real interest rates. Bolivia, however, which had also adopted liberalization policies after eliminating the hyper-inflation in the mid-1980s, did not witness an upsurge in private investment, and growth remained stagnant.

• Several Latin American countries (adjusting and non-adjusting) experienced a decline in public investment during the 1980s. Chile was an exception, although public investment also declined sharply in the 1970s when the structural reforms were adopted. The implication is that public investment tends to be squeezed when balancing the fiscal and external accounts.

Macroeconomic Policies and Private Investment: Theory and Empirical Evidence

This section briefly reviews the literature on the effects of macroeconomic policies on private investment for the purpose of understanding some of the experiences discussed above.[21] Of particular interest is the impact on investment of the monetary, fiscal and exchange rate policy measures typically included in macroeconomic adjustment programs, as well as the effects of the debt overhang and credibility issues on capital formation.

Demand Management Policies and Investment

A basic ingredient of macroeconomic adjustment programs is a set of absorption-reducing measures (for example, monetary and fiscal restraint) that, in the short run, are likely to lead to a reduction in output growth. While each of these measures may have some specific, direct effect on investment (as discussed below), they all affect investment indirectly through their impact on output. The reason is that, as most empirical studies of investment behavior show, investment responds strongly to changes in output. Investment in developing countries is no exception, and most econometric studies conclude that fluctuations in output are one of the most important determinants of private investment (see, for example, Blejer and Kahn 1984, Faini and de Melo 1990, Greene and Villanueva 1991, and this study).

The initial downturn in economic activity often associated with macroeconomic adjustment may affect investment

through its effect on expectations. A current recession could produce "pessimistic" expectations that lead investors to postpone investment until the recovery arrives; this phenomenon in turn may prevent the take-off of investment (particularly in projects with short gestation lags) and delay the recovery itself, and the economy could get stuck in a low investment equilibrium because of insufficient investment as a result of a self-fulfilling pessimism. How to avoid this eventuality is an important consideration in the design of restrictive demand policies that minimize the potentially adverse impact on investment and growth.

Monetary policy and private investment. The restrictive monetary and credit policies usually included in stabilization packages tend to raise the cost of capital to users by raising the real cost of bank credit, a major source of investment financing in developing countries, and by increasing the opportunity cost of retained earnings, the other main source of investment financing in most developing countries. The result is a decline in investment through both mechanisms. The empirical relevance of this effect has been confirmed in a number of studies (for example, de Melo and Tybout 1990, Greene and Villanueva 1990, and Solimano 1989), but others have not found a significant effect of interest rates on investment demand. The reason is that in the repressed financial markets that characterize many developing countries, credit policy affects investment directly through the stock of credit available to firms with access to preferential interest rates, rather than through the indirect channel of interest rates—although the latter will also operate for firms that borrow in the unofficial money market (see van Wijnbergen 1983a and b). Many empirical studies note this direct role of credit availability (for example, van Wijnbergen 1982, Blejer and Kahn 1984, Lim 1987 and Dailami 1990). Hence, the institutional set-up of the financial markets in developing countries is an important ingredient in the transmission mechanisms of monetary and credit policy with respect to investment.

Fiscal policy, public investment and private investment. High fiscal deficits push interest rates up and/or reduce the availability of credit to the private sector. Thus, they tend to crowd private investment out. In principle, a reduction of the public deficit—a main objective of many adjustment packages—should allow an expansion of private investment. However, as the experience of several Latin American countries in the 1980s shows, fiscal adjustment often takes the form of reduced public investment, some of whose components (especially investments in infrastructure such as roads and communications) may be complementary with private investment. As a result, private investment falls as well. From the policy viewpoint, this underscores the need to protect public investment in infrastructure during adjustment to facilitate the recovery of private investment and growth.

Several empirical studies shed some light on this issue. The results obtained by Blejer and Kahn (1984) from cross-country data indicate that public investment in infrastructure complements private investment (and other types of public investment do not). More recently, Greene and Villanueva (1991), using a panel of 23 developing countries, and this study, also found complementarity. Musalem (1989) found evidence of complementarity between private and public investment in a time-series study of investment in Mexico. However, Balassa (1988) reported cross-section estimates showing that public and private investment are negatively related, with an increase in public investment leading to a decline in private investment.[22]

Exchange Rate Policy and Private Investment

The other important ingredient of most adjustment programs is a real devaluation, aimed at expenditure-switching to complement the expenditure-reducing measures. In the 1980s many developing countries undertook sharp real depreciations as part of their adjustment to the debt crisis. A real depreciation affects investment through three main channels: the real cost of capital goods; the real interest rate; and real output.[23]

First, a real depreciation tends to raise the real cost of capital goods relative to domestic goods. The reason is that in most developing countries capital has a high import content (mainly machinery and equipment), whose relative price is increased by a real devaluation. As argued by Buffie (1986) and Branson (1986), this situation tends, ceteris paribus, to depress investment in non-tradable activities. However, the opposite happens in the traded goods sector: the real cost of new capital goods in terms of final goods falls and investment rises. The result for aggregate investment is therefore uncertain. Despite this theoretical ambiguity, most empirical studies conclude that in the short run a real depreciation has an adverse impact on investment through this cost-of-capital-goods effect (although its long-run effect may be positive).[24] In general, a high dependence on imported capital and intermediate goods and a relatively low share of the traded goods sector in total investment would make the contractionary result hold.[25]

A second channel through which devaluation affects the profitability of investment is the real interest rate. Consider first the case of an unanticipated devaluation and assume that interest rates are determined in the markets for domestic assets (for example, in the money market). Devaluation raises the price level through its impact on the cost of imported intermediate inputs and wages under indexation; if monetary policy does not fully accommodate the increase in the price level, real money balances fall, pushing up the real interest rate for a given rate of (anticipated) inflation. Hence, the cost of capital to the user rises and investment falls. On the other hand, if the devaluation is anticipated and if it

succeeds in eliminating the expectations of a devaluation, then it may result in an expansion of investment, since the required return on capital would tend to fall, a reflection of the reduction in the anticipated rate of depreciation.[26]

The third channel through which a devaluation may affect investment is through its impact on aggregate demand. If the devaluation reduces aggregate demand ex ante, then ex-post investment is likely to fall. Moreover, if investment has a significant import content, then an expansion in output is likely to be a necessary (but not sufficient) condition for investment not to fall ex-post (Serven 1990). The literature on contractionary devaluation (Krugman and Taylor 1978, van Wijnbergen 1985, Solimano 1986, Edwards 1986 and Lizondo and Montiel 1989) emphasizes how slowly the substitution effects of a devaluation emerge; hence, in the short run the impact of a real devaluation on aggregate demand is dominated by its adverse effects on income: it generates transfers of real income abroad (because of the likely initial external imbalance) from wage earners (low savers) to profit recipients (high savers)—a pattern that tends to reduce aggregate demand.[27] If the net effect of a currency devaluation is contractionary, then the slump in economic activity is likely to form the basis for investors to cut investment spending. However, with sufficiently strong substitution effects (for example, a large impact of devaluation on net exports), greater output and investment could result—an expansionary outcome that becomes more likely as time passes and the substitution effects gradually come into play.[28]

The Incentive Structure and Investment Response: Credibility, Uncertainty and Irreversibility

A key ingredient of most macroeconomic adjustment packages is a change in economic incentives that raises profitability in the tradable sector. The objective is to attract new investment, increase productive capacity and enhance economic growth—and thus ensure the sustainability of the adjustment process.

In practice, however, the investment response often is weak and slow (a clear example was Bolivia in the late 1980s), a situation that poses major difficulties for the sustainability of the adjustment effort. The main reason for this insufficient investment response is uncertainty factors in investment decisions.

Irreversibility, Uncertainty and Investment

As an emerging literature emphasizes (see Pindyck 1991 for a survey), the key role of uncertainty in investment decisions follows directly from the irreversible nature of most investment expenditures. They can be viewed as sunk costs, in that capital, once installed, is firm- or industry-specific and cannot be put to productive use in a different activity (at least not without incurring a substantial cost). The decision to un-dertake an irreversible investment in an uncertain environment involves the exercise of an option—the option to wait for new information that might affect the desirability or timing of the investment. Thus, the lost value of this option must be considered as part of the opportunity cost of investment. As recent studies have shown, this opportunity cost (the "value of waiting") can be substantial and is very sensitive to the prevailing degree of uncertainty about the economic conditions that determine the future returns on investment. As a consequence, changes in uncertainty can have a very strong impact on aggregate investment. From a policy perspective, the stability and predictability of the incentive structure and the macroeconomic policy environment may be as important as the level of the tax incentives or the interest rate.

The relevance of these issues for macroeconomic policy, especially in developing countries, cannot be overemphasized. Consider, for example, the problem of relative price volatility. Many developing countries suffer from high and unpredictable inflation, which is usually matched by high relative price variability. The irreversibility approach suggests that instability would reduce the effectiveness with which relative price changes stimulate investment.[29]

The debt overhang that many high-indebted countries face creates a similar problem, a point emphasized by Sachs (1988). It arises from the need to carry out an external transfer to the country's creditors, and it represents another source of instability in the macroeconomic environment: in a context of uncertainty, the level of the real exchange rate and/or the demand management policies consistent with the required transfer also become uncertain; and the size of the transfer itself is not known with certainty, as it depends on uncontrollable factors such as the future level of world interest rates and the terms of trade. Carrying out the transfer may require future changes in the real exchange rate, fiscal contraction or both. Thus, investors face the risk of large swings in relative prices, taxation or aggregate demand, any of which, as argued above, would lead to reduced investment.

In practice, this effect may be hard to identify, since the foreign debt may affect investment adversely through two additional channels (emphasized by Borensztein 1989). First, there is the debt overhang, which acts as an anticipated foreign tax on current and future income: since part of the future return on any investment will accrue to the creditors as bigger debt service payments, the overhang discourages capital accumulation and promotes capital flight. Second is the credit rationing effect: a highly indebted country is likely to face credit constraints in the international capital markets, a situation that is equivalent to facing higher real interest rates and that will also discourage investment.[30]

The Role of Credibility

From a policy perspective, the imperfect credibility of policy reforms is a very important source of uncertainty. It is re-

lated to the public's perceptions about both the internal consistency of the adjustment program and the government's willingness to carry out the program despite the implied social costs. Unless investors view the adjustment program as fully credible in both senses, the possibility of a future policy reversal will be a key determinant of the investment response (Dornbusch 1988 and Rodrik 1990). In such conditions, the value of waiting arises from the losses (the "irreversible mistake" in Bernanke's [1983] terminology) that investors would incur if the policy were in fact reversed in the future.[31] In conclusion, when investment is irreversible, uncertainty over policy can have very adverse consequences for private investment.[32]

Thus, stabilization may entail large social and economic costs if credibility is low. The reasons are that the investment response will be insufficient to offset the deflationary bias of the usual fiscal and monetary restraint measures, and a persistent recession may develop before investors become confident enough that the adjustment measures will be maintained.

Although establishing the right economic incentives is a precondition for investment and growth, it does not guarantee that investment and growth will take place. The investment response in Bolivia and Mexico was slow, whereas in Chile, Korea and Singapore the reaction of the private sector to the economic incentives was strong.[33]

It is important to emphasize that in practice a reversal of policy is an endogenous outcome, since current decisions by the private sector affect the opportunity set of future policy actions and ultimately determine the sustainability of the adjustment policy. As an example, consider the case of a large real depreciation that, because of a low level of confidence, fails to stimulate investment in the tradable sector. Its only visible effects will be a deflationary cut in real income and a redistribution of income from labor to capital, especially in the traded goods sector. However, because the depreciation is not sufficient to compensate for the lack of credibility, the increased profits will be reflected in increased capital flight. Social pressure and balance-of-payments problems may eventually force a policy reversal that would confirm the initial skepticism of investors. The alternative scenario is a high level of confidence at the outset that fosters an investment boom and validates the adjustment program.

In the context of these two possible outcomes, the final result of the adjustment measures is indeterminate.[34] If left alone, the economy might get stuck in the "low investment-adjustment failure" equilibrium.[35] Since the "high investment-adjustment success" equilibrium is clearly better, it is crucial to investigate what specific policy measures can lead the economy to this superior outcome.

There is no simple answer. While transitory investment incentives appear to be the most appropriate tool for addressing the investment externality, in practice they run the risk of destabilizing public finances, which often are a key

element in adjustment programs. On the other hand, adequate external support for stabilization may play an important role by raising investors' confidence in the sustainability of adjustment, thus giving rise to the investment take-off.[36]

Econometric Analysis

The preceding discussion examined from a theoretical viewpoint the effect of a number of factors on private investment. The immediate question is to what extent these factors explain the actual performance of investment in developing countries in recent years.

To investigate this question, a simple investment equation was estimated using pooled cross section-time series data for a group of 15 developing countries. Based on the discussion in the previous section, it is postulated that real private investment is a function of real growth in output, the real exchange rate, real public investment, the foreign debt burden and the degree of macroeconomic uncertainty/instability, as follows:

$$(7-1) \qquad IP/Y = F(\Delta Y, e, IG/Y, D^*/Y, \sigma)$$

where

IP	=	real private investment
Y	=	real GDP
e	=	the real exchange rate
IG	=	real public investment
D^*/Y	=	the ratio of foreign debt to GDP and
σ	=	an appropriate measure of instability.

According to the previous discussion, it is expected that the growth of real output will exert a positive effect on the rate of private investment. In turn, the effect of the real exchange rate is uncertain, as discussed before. The sign of the coefficient of public investment depends on whether public investment is primarily complementary to or substitutive of private investment. Last, an increase in the degree of economic instability or the burden of foreign debt should reduce investment.[37] Finally, a dummy variable is introduced into the regressions that takes a value of one after 1982 to capture a possible shift in the empirical equation as a result of the reduction in the availability of external financing after the debt crisis.[38]

To estimate the investment equation, data for the years 1976–88 for 15 developing countries were used; hence, the sample consists of 195 observations. The choice of countries and time period was dictated by the availability and reliability of the data. The countries in the study were: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Kenya, Korea, Mexico, Peru, Singapore, Thailand, Turkey, Uruguay and Zimbabwe.

To measure uncertainty, σ, the sample variability of some key macroeconomic variables was used. In particular,

128

the variabilities of the real exchange rate and the variability of the inflation rate were considered. In each case, uncertainty is summarized by the coefficient of variation of the relevant variable over the last three years;[39] however, using longer or shorter time horizons did not significantly affect the estimated parameters.

The sample averages of the explanatory variables are summarized in table 7-7 for all the countries in the sample and for some regional subsamples. It should be emphasized that the regional groupings are "unbalanced," in that the Latin American group consists of nine countries, while the East Asian and African regions only include three and two countries, respectively. Nevertheless, the information in the table reveals a number of interesting differences across time periods and country groups.

For the overall sample, there was a decline in all the investment indicators between the pre- and post-debt crisis years. The fall in total investment exceeded 4 percentage points of GDP. When looked at regionally, however, the decline was concentrated in the Latin American and African country groups, for which the fall was about 6 percent of GDP. In contrast, the East Asia region actually showed a small increase in investment in the second half of the sample period—in addition to a consistently higher rate of investment than the other groups had in all periods. It can also be seen that the rates of both private and public investment declined in the Latin America and Africa country groups, while they both rose in East Asia.

On average, real GDP growth also declined after 1982. However, the regional disaggregation again shows that the slowdown was concentrated in the Latin American countries, with the other groups in the sample showing no significant change in their growth pattern.

All country groups experienced an increase in their average debt ratios between the pre- and post-1982 periods. The increase was, however, much larger in the Latin American and African countries in the sample (it almost doubled for both groups after the debt crisis) than it was in the East Asian group. Similarly, the real exchange rate depreciated on average in all three country groups, although the extent of the depreciation was much larger in Latin America (in excess of 20 percent) than in the other two country groups (around 10 percent).

The pattern of the indicators of instability over time and across regions also deserves comment. The last two columns of table 7-7 show two interesting facts. First, the East Asian country group was clearly "more stable" in terms of either of the instability measures than the other two regions were. Second, for the overall sample, after 1982 there was a spectacular increase in the variability of inflation, along with a more moderate rise in the instability of the real exchange rate. However, the regional grouping reveals that the increase in instability was concentrated in the Latin American countries, while the East Asian group actually showed an improvement in terms of both indicators, and the African countries in the sample did not register any significant change in macroeconomic instability.

The investment equation was estimated using the "fixed effects" panel data specification (see, for example, Hsiao 1986). Since preliminary experiments indicated the presence of moderate but significant first-order serial correlation in the residuals, the two-stage estimation procedure proposed by Bhargava, Franzini and Narendranathan (1982) was used. The second round estimates do not show any symptoms of auto-correlation. Finally, both linear and logarithmic specifications were tested; the latter were adopted in

Table 7-7. Macroeconomic and Investment Indicators

Country group	Period	Real GDP growth (%)	Ratio of total invest. to GDP (%)	Ratio of private invest. to GDP (%)	Ratio of public invest. to GDP (%)	Ratio of debt to GDP (%)	Real exchange rate (1980=100)	Inflation instab. index	Real exchange rate instab. index
All	1975-88	0.036	0.206	0.131	0.075	0.487	113.6	1.000	1.000
	1975-81	0.044	0.226	0.144	0.082	0.344	104.6	0.406	0.897
	1982-88	0.028	0.185	0.117	0.068	0.629	122.6	1.593	1.103
Latin America	1975-88	0.023	0.171	0.106	0.065	0.589	125.2	1.585	1.167
	1975-81	0.037	0.200	0.123	0.077	0.409	113.1	0.585	1.040
	1982-88	0.009	0.143	0.089	0.054	0.769	138.1	2.584	1.286
East Asia	1975-88	0.073	0.320	0.230	0.090	0.269	99.3	0.068	0.643
	1975-81	0.073	0.312	0.228	0.084	0.232	93.8	0.101	0.754
	1982-88	0.073	0.325	0.230	0.095	0.307	104.9	0.035	0.532
Africa	1975-88	0.036	0.184	0.104	0.080	0.414	98.8	0.091	1.234
	1975-81	0.036	0.217	0.128	0.089	0.270	94.7	0.094	1.230
	1982-88	0.036	0.154	0.081	0.073	0.558	102.9	0.089	1.226

Note: The sample covers the years 1975-88 and includes Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Kenya, Korea, Mexico, Peru, Singapore, Thailand, Turkey, Uruguay and Zimbabwe.
Source: World Bank data.

view of their superior performance in terms of explanatory power and overall significance.

The empirical estimates appear in table 7–8. Since the real exchange rate always failed to be statistically significant at any reasonable level of confidence, both the specifications with and without it are reported. As can be seen from the table, deleting the real exchange rate has only a negligible effect on the remaining coefficients.

Overall, the results for either specification are quite good: the parameter estimates carry their theoretically correct signs; and the explanatory power of the equations is extremely high.

As with most of the empirical studies, it was found here that growth in real output had a strong positive impact on private investment. Public investment also had a positive effect on private investment. In short, the complementarity relationships between both investment categories dominated the sample. As expected, the foreign debt burden had a strong negative effect on the private investment ratio; as argued above, this result may reflect a combination of the increased macroeconomic uncertainty arising from the need to carry out an increased resource transfer abroad and the effects of credit rationing on the world capital markets. In contrast, the effect of the real exchange rate reported in the first column of table 7–8 is not significant;[40] this result is in accordance with the theoretical discussion in which several

channels were identified through which the real exchange rate may affect investment in opposite directions.[41]

The two measures of instability carry a negative sign, as expected. Although their individual significance is not always above the 5 percent level, taken together they are strongly significant: for example, using model II, the null hypothesis that they are jointly insignificant can be rejected (the computed value of the chi-square statistic with two degrees of freedom is 6.70, well above the 5 percent limit of 5.99). This result is probably attributable to the fact that both variables contain some common information (for example, greater variability in inflation will often be reflected in greater variability in the real exchange rate).

Finally, the post-1982 dummy is negative and strongly significant, clear evidence of a downward shift in the investment rule as a result of the reduction in external financing after the debt crisis.

Since the parameter estimates in table 7–8 correspond to a logarithmic specification of the determinants of the ratio of private investment to GDP, it may be useful to restate them in a manner that provides a more direct measure of the impact of the different variables on the investment ratio. Table 7–9 provides that information: it details the impact on the share of private investment in GDP of a 1 percentage point increase in each of the right-hand side variables, using the second specification in the previous table.[42]

According to the figures in the table, the largest effect corresponds to the public investment ratio: an increase in the ratio of public investment to GDP of 1 percentage point raises the private investment ratio by over one-fourth of a point. Similarly, a 1 percentage point increase in the growth rate of real GDP increases the investment ratio by 0.15 percentage point; in turn, an increase in foreign debt of 1 percentage point of GDP reduces investment by about 0.07 percentage point of GDP. Finally, a 1 percent increase in the instability of inflation and the real exchange rate results in declines in the investment ratio of .001 and .003 percentage point, respectively.

An important practical question that follows from the empirical results is what has been the relative contribution of each of the explanatory variables to the actual variation of investment in developing countries in recent years? Identify-

Table 7–8. Estimation Results, 1976-88

(dependent variable: log of the private investment/GDP ratio)

Variable	Model I[a]	Model II[b]
Real GDP growth [c] (lagged)	1.166	1.149
	(3.500)	(3.560)
Real public investment [d]	0.160	0.147
as % of real GDP	(2.550)	(2.310)
Foreign debt [d]	-0.230	-0.240
as % of GDP	(-3.500)	(-3.560)
Real exchange rate [d]	0.101	-
	(0.980)	
Inflation instability	-0.006	-0.008
index[e]	(-1.690)	(-2.030)
Real exchange rate instability	-0.043	-0.027
index[e]	(-1.920)	(-1.610)
Post-1982 dummy	-0.107	-0.095
	(-3.090)	(-2.890)
R^2	0.974	0.978
Autocorrelation coefficient	0.400	0.402
SEE	0.068	0.068
Standard deviation of dependent variable	0.530	0.530
Number of observations	195	195

- Not applicable.

Note: T-statistics appear in parentheses. The regressions also include 15 country dummies.
a. With the real exchange rate as a variable.
b. Without the real exchange rate as a variable.
c. First differences of the log of real GDP.
d. Expressed in logs.
e. Measured by the coefficient of variation.
Source: Authors' calculations.

Table 7–9. Determinants of Real Private Investment
(percentage of GDP)

Effect on the private investment/GDP ratio of a 1 percentage point increase in	Percentage point
Ratio of public investment to GDP	0.257
Ratio of foreign debt to GDP	-0.065
Real GDP growth	0.151
Inflation instability	-0.001
Real exchange rate instability	-0.003

Note: The figures were obtained using the "all countries" sample mean of each variable (presented in table 7-7).
Source: Authors' calculations.

ing the variables that have made the greatest contributions is a task of more that scholarly interest: if some of the variables can be affected in a systematic manner by economic policy, then the exercise may provide some guidance as to what the main policy priorities should be to revive private investment.

Table 7–10 presents the contribution of each of the determinants of investment to the observed evolution of the ratio of private investment to GDP between the pre- and post-debt crisis periods.[43] The calculations for the overall sample of countries and for the three regional groupings defined above are both reported.

For all country groups, the estimated equation predicts a fall in the investment share between both subperiods. For the overall sample, all variables contribute to the adverse investment performance. However, the largest contribution corresponds to the debt burden, which is responsible for a decline in the share of private investment in GDP of almost 2 percentage points; moreover, this variable contributes about half of the explained change for all country groups. Similarly, the post-crisis dummy also has a large impact: it explains a reduction in the investment share of more than 1 percentage point.

In turn, the evolution of public investment played a significant role: its reduction contributed to a deterioration in the private investment ratio of about 0.5 percentage point in both the overall sample and the Latin American and African country groups; however, its increase in the East Asian countries helped raise their private investment ratio by about 0.3 percentage point of GDP.

According to table 7–7, real GDP growth in the sample countries slowed only in the Latin American countries, while it was practically unchanged in the rest. Hence, in table 7–10 its contribution to the decline in investment is only 0.2

Table 7–10. Contribution of Explanatory Variables to the Change in Private Investment
(1982–88 versus 1975–81)

	All countries	Latin America [a]	East Asia [b]	Africa [c]
Change in private investment as % of GDP	-2.7	-3.4	0.5	-4.7
Explained by changes (%) in				
Ratio of foreign debt to GDP	-1.8	-2.3	-0.5	-1.9
GDP growth rate	-0.2	-0.4	0.0	0.0
Ratio of public investment to GDP	-0.4	-0.6	0.3	-0.4
Instability	-0.2	-0.3	0.1	0.0
Post-1982 dummy	-1.2	-1.2	-1.2	-1.2
Explained change	-3.8	-4.8	-1.3	-3.5
Residual [d]	1.1	1.4	1.8	-1.2

a. The countries included in the Latin American group are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru and Uruguay.
b. The East Asia group includes Korea, Singapore and Thailand.
c. The Africa group includes Kenya and Zimbabwe.
d. Residual is actual change minus explained change.
Source: Authors' calculations.

percentage points in the overall sample; however, in the case of the Latin America region, the deterioration in growth contributes a fall of 0.4 percentage points in the investment ratio.

Finally, the change in macroeconomic uncertainty, which combines the two instability measures, also contributed to the change in the private investment ratio. Its pattern differed widely across regions: it led to a 0.3 percentage point decline in investment in Latin America but to a 0.1 percent increase in East Asia; in the African country group, its contribution was nil. It should remembered, however, that these figures probably represent a lower bound for the effects of instability, since a significant portion of the adverse contribution of the external debt burden to the investment performance reported above is likely to be related to the macroeconomic uncertainty associated with the servicing of the foreign debt.

To conclude, it should be emphasized that these computed contributions of the different explanatory variables to the observed investment performance should be viewed with caution. Interpreting the contributions in terms of "causality" may be misleading, as in general the different variables are not mutually independent. For example, in a context of external credit rationing, an increased foreign debt burden is likely (or almost certain) to be associated with reduced public investment; in this sense, the adverse effect of the external debt burden on private investment would be understated by simple calculations such as the ones reported above—which consider only the direct effect of each variable on investment.

Conclusions and Policy Implications

This chapter investigated the macroeconomic determinants of the recent investment performance of developing countries, drawing on the experience of selected countries, on the theoretical and empirical literature and on an econometric analysis of a sample of developing countries.

The comparison of the experience of several Latin American and East Asian countries suggests some lessons regarding the performance of investment following adjustment and reform. First, the investment and growth performance of the Latin American and East Asian countries in the 1980s differed markedly. In the latter, the adjustment to the external shocks was relatively mild, and after an initial decline in investment and growth, both returned to the pre-shock levels fairly rapidly. In contrast, in several Latin American economies the adverse external shocks of the early 1980s and the debt crisis led to a protracted period of macroeconomic instability, with large drops in investment and growth. Moreover, recovering a path of sustained growth has proved slow and complicated. The maintenance of macroeconomic stability and predictable policy, in addition to a more rapid resumption of foreign financing in East Asia relative to

Latin America, to a large extent explain the differences in the performance of investment in both regions.

Second, the evidence from Chile, Mexico and Bolivia on the effects of structural reforms (trade liberalization, fiscal reform and privatization) on private investment is mixed. In the late 1970s and 1980s in Chile and in the late 1980s in Mexico, the response of private investment to the reforms was considerable. However, Bolivia, which adopted liberalization policies after eliminating the hyper-inflation of the mid-1980s, did not see an upsurge in private investment, and growth remained stagnant.

Third, the decline in public investment is a disturbing factor in the response to adjustment and reform. That trend was observed in Chile in the mid- to late 1970s and in Mexico in the late 1980s. In addition, this feature was also present in non-adjusting economies such as Argentina and Brazil in the 1980s. While in some instances the cut in public investment was unavoidable (because it had reached unsustainable levels, as, for example, in Mexico in the late 1970s), in others the across-the-board contraction of the accumulation of public capital probably affected many projects that were complementary with private investment.

The determinants of private investment were analyzed econometrically using panel data for 15 developing countries. Overall, the specification presented here had a high explanatory power, accounting for more than 90 percent of the observed variation in the ratio of private investment to GDP. The results indicate that, in the sample, growth in output and public investment had a significant positive impact on private investment. In contrast, the foreign debt burden, macroeconomic instability (measured by the variability of inflation and the real exchange rate) and the reduction in external financing after 1982 exerted a significantly adverse effect on private investment. Finally, the effect of the real exchange rate was found to be insignificant.

Given the econometric estimates, the contributions of the different explanatory variables to the decline in the average ratio of private investment to GDP after 1982 were analyzed. All the variables contributed to some extent to the fall in investment, but at the same time the external debt burden and credit rationing may have played relatively the largest roles in the slowdown in investment. However, the contributions of the different variables differed widely across the regions represented in the sample; for example, increased macroeconomic instability and reduced public investment helped push the private investment ratio in Latin America down, while reduced instability and higher public investment had the opposite effect in East Asia. These regional patterns are in broad agreement with the conclusions derived from the country experiences reviewed above.

This analysis has some important implications for the design of growth-enhancing macroeconomic adjustment programs. First, macroeconomic stability and policy credibility are key ingredients for the achievement of a strong investment response. In a context of high macroeconomic uncertainty, the reaction of investment to changes in incentives is likely to be very limited. The same will happen if the policy measures are perceived as inconsistent or suspected of being temporary. In such circumstances, investors will prefer to wait and see before committing resources to irreversible fixed investments.

Second, even if the policy changes are perceived as permanent, insufficient public investment (particularly in infrastructure) that is complementary with private investment may hamper the recovery of the latter. The protection of well-targeted public investment projects in infrastructure during the course of macroeconomic and, particularly, fiscal adjustment can play an important role in stimulating the private sector's response to adjustment measures.

Third, the availability of sufficient external resources may be a key ingredient for the recovery of private investment, not only because it contributes directly to an easing of the financing constraints on investment, but also because it may raise the private sector's confidence in the viability of the adjustment effort. In particular, the empirical findings suggest that debt relief measures could go a long way toward helping revive investment by liberating investible resources currently committed to service the debt burden, and also by reducing the disincentive effects on investment caused by the debt overhang.

Notes

1. The authors appreciate the comments by Bela Balassa, Max Corden, Stanley Fischer, Felipe Larrain and Dani Rodrik on an earlier version of this chapter. Raimundo Soto provided efficient research assistance.

2. The breakdown of investment into private and public components draws on Pfeffermann and Madarassy (1991). Private investment was obtained from the national accounts data as the difference between total investment and investment by the consolidated public sector.

3. Mexico used incomes policy for stabilization purposes after late 1987; Chile and Bolivia used some form of exchange rate stabilization and/or wage controls to help disinflation at different times during stabilization. For the Chilean experience with stabilization in the last two decades, see Corbo and Solimano (1991). Bolivia's experience with stabilization and reform is described in Morales (1991).

4. The crisis of 1982-83 put some of these policies in Chile under heavy stress. Some reversals took place, such as increases in tariffs and direct intervention in the financial system. However, as the crisis receded, the government lowered tariffs again and gradually deregulated the financial system.

5. An econometric analysis of the behavior of private investment in Chile in the 1980s appears in Solimano (1989).

6. The share of public investment in GDP in Mexico rose from 7.7 percent in the period 1971-77 to 10.5 percent in 1978-81.

7. See Ortiz (1990) for a discussion of the Mexican case and the behavior of private investment in the late 1980s.

8. See Morales (1991) for a discussion of the Bolivian plan.

9. The development plans of the late sixties in forestry and

agro-industrial activities, and the new land-property structure following the agrarian reform, are also elements in the strong export response of agricultural goods in Chile in the mid- to late 1980s.

10. Keynes (1936, chapter 12), referred to it as "...the **state of confidence**...a matter to which practical men always pay the closest and most anxious attention. But economists have not analyzed it carefully...."

11. Peru and Nicaragua are other cases of extreme macroeconomic instability in Latin America in the 1980s.

12. Argentina was the pioneer with heterodox stabilization, launching the Austral Plan in mid-1985; Brazil followed with the Cruzado plan in early 1986. After some initial success, those plans were undercut by a resumption of inflation and the repeated use of price controls and emergency fiscal measures to curb (transitorily) the escalating inflation. The situation in both economies worsened in 1989 as the rate of inflation approached hyper-inflationary levels in the context of domestic recession and political disarray. See Heymann (1991), Kiguel and Liviatan (1991), Cardoso (1991) and Solimano (1990) on these two and other experiences with stabilization.

13. It is well-known that the quality of public services has deteriorated sharply in Argentina in recent years. No doubt this situation is related to the inability of the state to improve the collection of fiscal revenues from the tax system.

14. See Larrain and Vergara (1991) for an international comparison of the patterns of income distribution. They compare East Asia, Latin America and the countries in the Organisation for Economic Co-operation and Development (OECD).

15. The agrarian reform is credited with being an important factor in the relatively even distribution of income in Korea (Collins and Park 1989).

16. See Collins and Park (1989) for a good description of the Korean case.

17. Chile is perhaps an exception in this respect.

18. In terms of the composition of total investment, private investment was overwhelmingly dominant, representing between two-thirds and three-quarters of the total capital accumulation in these East Asian economies.

19. The average annual rate of growth of GDP in 19 Latin American countries for the period 1950-80 was 5.8 percent, with output measured in terms of adjusted purchasing power. GDP per capita grew in the same period at an annual rate of 3 percent. See Cardoso and Fishlow (1989).

20. This range is an unweighted average for Argentina, Bolivia, Brazil, Chile and Mexico for the period 1978-88.

21. A more thorough review of the literature can be found in Serven and Solimano (1992).

22. Khan and Reinhart (1990) reexamined the issue of the differentials in productivity between private and public investment for a sample of 24 developing countries and found that the marginal productivity of public sector capital was negative, although not significantly so, while that of private investment was significantly positive.

23. A real depreciation may also have potentially important effects on the timing of investment, depending on the degree of financial openness in the economy and on the import content of capital goods. For reasons of space this issue is ignored here; details can be found in Dornbusch (1986) and Serven (1990).

24. Musalem (1989) found that in Mexico the devaluation had an adverse investment effect. Faini and de Melo (1990) arrived at similar results using data for 24 developing countries. Solimano (1989), on the basis of an empirical simultaneous equation model

for Chile derived from an extended Tobin's Q approach, also concluded that a real depreciation reduced investment in the short run. See also Branson (1986).

25. See Lizondo and Montiel (1989) for a detailed analysis of this issue.

26. In fact, whether this shift takes place will depend on the degree of capital mobility and import content of investment; see Serven (1990).

27. A real depreciation may also have adverse supply-side effects that lead to a contraction in output, such as the increased real cost (in terms of domestic goods) of imported inputs and the rise in the costs of working capital (because of higher interest rates).

28. See Solimano (1986) for an evaluation of these J curve-type effects of devaluation on output in Chile.

29. van Wijnbergen (1985) provides an example along these lines. A trade reform that is suspected of being only temporary can in fact lead to a fall in investment, as the economic agents postpone investment in *both* the domestic and traded goods sectors in order to receive additional information.

30. Empirical studies have confirmed the adverse impact on investment of the foreign debt burden (for example, Faini and de Melo 1990, Greene and Villanueva 1990, and this chapter), although more research is needed to identify the specific mechanisms at work.

31. Clearly, the larger the perceived probability of a future policy reversal, the less willing investors will be to undertake fixed investment projects—or the larger the current return they will require to compensate for the possibility of an irreversible mistake. Moreover, such an increase in the required return on investment can be substantial even when the perceived probability of reversal is moderately low, as Dornbusch (1989) and Rodrik (1989) have shown.

32. This adverse impact of uncertainty on private investment in developing countries has been empirically verified in several recent studies (see Solimano 1989, Faini and de Melo 1990 and Lopez 1990) as well as in this chapter (see below).

33. Obviously, a high level of credibility speeds the investment response and reduces the costs of adjustment. However, the question of how government actions can affect credibility is largely unresolved. An important related issue here is the choice between gradual and abrupt stabilization. The former involves initially modest objectives that can be achieved with near certainty, an approach that enables the government to build its reputation. The latter starts with an over-adjustment (for example, an over-depreciation of the exchange rate) to frontload the incentives for resource reallocation (but this approach also raises the costs of adjustment).

34. The reason is the existence of an externality that creates a wedge between the social and private returns on investment: higher aggregate investment helps sustain the adjustment effort and therefore results in higher returns on investment, a mechanism that the individual investor will ignore. Observe also that in both outcomes the expectations are self-fulfilling, a phenomenon that reflects the existence of multiple rational expectations equilibria. This result is familiar from the literature on investment under monopolistic competition (Kiyotaki 1988 and Shleifer and Vishny 1989). Rodrik (1989) provides an example of indeterminacy similar to that in the text, but focused on the consequences of trade liberalization.

35. However, when multiple equilibria are present, there is no clear rule for determining which of the possible outcomes will prevail. Krugman (1991) addressed this issue.

36. In fact, the lack of external resources has been a negative element that probably has contributed to a weakening of the private sector's confidence in some stabilization attempts in highly indebted countries.

37. It is important to emphasize that, as discussed above, the ratio of debt to GDP may affect investment negatively through more than one channel, as it constitutes a summary measure of anticipated taxation, external liquidity problems and the macroeconomic uncertainty associated with the servicing of the foreign debt.

38. The empirical equation does not include the real interest rate among the explanatory variables. Experiments by the authors with alternative measures of the ex-ante rate of interest proved unsuccessful. The usual difficulties in measuring such a variable are likely to be compounded here by the wide differences in financial market arrangements across the countries in the sample and across time periods. Thus, a decision was made to exclude the interest rate from the final specification.

39. The measure thus obtained was rescaled so that its sample mean equaled 1.

40. This result was not altered in other specifications that allowed for one- or two-year lags in the effect of the real exchange rate.

41. Time-series studies of private investment tell a somewhat different story. In Solimano (1989), which examines the case of Chile, a real appreciation of the exchange rate *raises* (aggregate) private investment, but the outburst of investment is unsustainable; conversely, a real depreciation reduces investment in the short term. Musalem (1989) also finds a significant negative effect of depreciation on investment for Mexico. For further discussion of this issue, see Fischer (1991).

42. Thus, the calculations in table 7–9 involve a linearization of the logarithmic equation around the sample means of the variables.

43. The figures in table 7–10 follow directly from tables 7–7 and 7–9. Because for each subperiod and/or region the residuals need not add up to zero, and because table 7–9 is based on a linear approximation, there is in general a discrepancy between the observed and actual changes in the ratio of investment to GDP. This discrepancy is the figure reported at the bottom of table 7–10.

References

Balassa, B. 1988. "Public Finance and Economic Development." World Bank, Policy, Planning and Research (PPR) Working Paper no. 31. Washington, D.C.

Bernanke, B. 1983. "Irreversibility, Uncertainty, and Cyclical Investment." *Quarterly Journal of Economics* 98:85–106.

Bhargava, A., L. Franzini and W. Narendranathan. 1982. "Serial Correlation and the Fixed Effects Model." *Review of Economic Studies* 49:533–49.

Blejer, M., and M. Khan. 1984. "Government Policy and Private Investment in Developing Countries." *IMF Staff Papers* 31:379–403.

Borensztein, E. 1989. "Debt Overhang, Credit Rationing, and Investment." Mimeo. International Monetary Fund. Washington, D.C.

Branson, W. 1986. "Stabilization, Stagflation, and Investment Incentives: The Case of Kenya, 1979–1980." In S. Edwards and L. Ahamed (eds.), *Economic Adjustment and Exchange Rates in Developing Countries*. Chicago: University of Chi-

cago Press.

Buffie, E. 1986. "Devaluation, Investment and Growth in LDC's." *Journal of Development Economics* 16 (March):361–79.

Cardoso, E. 1991. "From Inertial Inflation to Megainflation: Brazil in the 1980s." In M. Bruno, et al. (eds.), *Lessons of Economic Stabilization and Its Aftermath*. Cambridge, Mass.: MIT Press (forthcoming).

Cardoso, E., and A. Fishlow. 1989. "Latin American Economic Development: 1950–1980." NBER Working Paper no. 3161. National Bureau of Economic Affairs. Cambridge, Mass.

Collins, S., and W. A. Park. 1989. "External Debt and Macroeconomic Performance in South Korea." In J. Sachs (ed.), *Developing Country Debt and the World Economy*. Chicago: University of Chicago Press.

Corbo, V., and A. Solimano. 1991. "Stabilization Policies in Chile Revisited," 57–101. In M. Bruno, et al. (eds.), *Lessons from Stabilization and Its Aftermath*. Cambridge, Mass.: MIT Press.

Corden, M. 1990. "Macroeconomic Policy and Growth: Some Lessons of Experience." A paper presented at the World Bank Annual Conference on Development Economics, Washington, D.C., April 1990.

Dailami, M. 1990. "Financial Policy and Corporate Investment in Imperfect Capital Markets: The Case of Korea." World Bank, Policy, Planning and Research (PPR) Working Paper no. 409. Washington, D.C.

de Melo, J., and J. Tybout. 1990. "The Effects of Financial Liberalization on Savings and Investment in Uruguay." *Economic Development and Cultural Change* 34 (2):561–88.

Dornbusch, R. 1986. "Overborrowing: Three Case Studies." In G. Smith and J. Cuddington (eds.), *International Debt and the Developing Countries*. Washington, D.C.: World Bank.

———. 1988. "Notes on Credibility and Stabilization." National Bureau of Economic Research (NBER) Working Paper 2790. Cambridge, Mass.

———. 1989. "From Stabilization to Growth." Mimeo. Massachusetts Institute of Technology. Cambridge, Mass.

Easterly, W. 1989. "Fiscal Adjustment and Deficit Financing during the Debt Crisis." In I. Husain and I. Diwan (eds.), *Dealing with the Debt Crisis*. Washington, D.C.: World Bank.

Edwards, S. 1986. "Are Devaluations Contractionary?" *Review of Economics and Statistics* 68 (August):501–08.

Faini, R., and J. de Melo. 1990. "Adjustment, Investment, and the Real Exchange Rate in Developing Countries." *Economic Policy* (October).

Fischer, S. 1991. "Growth, Macroeconomics and Development." National Bureau of Economic Research (NBER) 6th Annual Conference on Macroeconomics, Cambridge, Mass.

Greene, J., and D. Villanueva. 1991. "Private Investment in Developing Countries: An Empirical Analysis." *IMF Staff Papers* 38 (1):33–58.

Heymann, D. 1991. "From Sharp Disinflation and Hyper and Back: The Argentine Experience, 1985–89." In M. Bruno, et al. (eds.), *Lessons from Stabilization and Its Aftermath*. Cambridge, Mass.: MIT Press.

Hsiao, C. 1986. *Analysis of Panel Data*. Cambridge: Cambridge University Press.

International Monetary Fund (IMF). 1989. *Short-Term Outlook*. Washington, D.C.: IMF.

Kahn, M., and C. Reinhart. 1990. "Private Investment and Economic Growth in Developing Countries." *World Development* 18 (January):18–27.

Keynes, J. M. 1936. *The General Theory of Employment Interest and Money*. New York: A Harvest BHJ Book.

Kiguel, M.. and N. Liviatan. 1991. "The Inflation Stabilization Cycles in Argentina and Brazil." In M. Bruno, et al. (eds.), *Lessons from Stabilization and Its Aftermath*. Cambridge, Mass.: MIT Press.

Kiyotaki, N. 1988. "Multiple Expectational Equilibria under Monopolistic Competition." *Quarterly Journal of Economics* 103:696–713.

Krugman, P. 1991. "History vs. Expectations," *Quarterly Journal of Economics* 106 (May) (2):651–67.

Krugman, P., and L. Taylor. 1978. "The Contractionary Effects of Devaluation." *Journal of International Economics* 8 (3):445–56.

Larrain, F., and R. Vergara. 1991. "Investment and Macroeconomic Adjustment in East Asia." Mimeo. World Bank. Washington, D.C.

Lim, J. 1987. "The New Structuralist Critique of the Monetarist Theory of Inflation." *Journal of Development Economics* 25 (1):465–62.

Lizondo, J. S., and P. Montiel. 1989. "Contractionary Devaluation in Developing Countries: An Analytical Overview." *IMF Staff Papers* 36 (1):182–227.

Lopez, R. 1990. "Economic Growth, Capital Accumulation, and Trade Policy in Developing Countries." Mimeo. World Bank. Washington, D.C.

Morales, J. A. 1991. "The Transition from Stabilization to Sustained Growth in Bolivia," 15–55. In M. Bruno, et al. (eds.), *Lessons from Stabilization and Its Aftermath*. Cambridge, Mass.: MIT Press.

Musalem, A. 1989. "Private Investment in Mexico: An Empirical Analysis." World Bank, Policy, Planning and Research (PPR) Working Paper no. 183. Washington, D.C.

Ortiz, G. 1991. "Mexico Beyond the Debt Crises. Towards Sustainable Growth with Price Stability," 283–322. In M. Bruno, et al. (eds.), *Lessons from Stabilization and Its Aftermath*. Cambridge, Mass.: MIT Press.

Pfefferman, G., and A. Madarassy. 1991. "Trends in Private Investment in Developing Countries." International Finance Corporation Discussion Paper. Washington, D.C.

Pindyck, R. 1991. "Irreversibility, Uncertainty, and Investment." *Journal of Economic Literature* 29 (3):1110–49.

Rodrik, D. 1989. "Policy Uncertainty and Private Investment in Developing Countries." National Bureau of Economic Research (NBER) Working Paper no. 2999. Cambridge, Mass.

——. 1990. "How Should Structural Adjustment Programs Be Designed?" *World Development* 18.

Sachs, J. 1988. "The Debt Overhang of Developing Countries." In R. Findlay (ed.), *Debt, Stabilization, and Development: Essays in Memory of Carlos Diaz Alejandro*. Oxford: Basil Blackwell.

Serven, L. 1990. "Anticipated Real Exchange Rate Changes and the Dynamics of Investment." World Bank, Policy, Research and External Affairs (PRE) Working Paper no. 562. Washington, D.C.

Serven, L., and A. Solimano. 1992. "Private Investment and Macroeconomic Adjustment: A Survey." *The World Bank Research Observer* 7 (1) (January) (forthcoming).

Shleifer, A., and R. Vishny. 1989. "The Efficiency of Investment in the Presence of Aggregate Demand Spillovers." *Journal of Political Economy* 96:1221–31.

Solimano, A. 1986. "Contractionary Devaluation in the Southern Cone: The Case of Chile." *Journal of Developing Economics* 23 (1):135–51.

——. 1989. "How Private Investment Reacts to Changing Macroeconomic Conditions. The Chilean Experience in the 1980s." World Bank, Policy, Research and External Affairs (PRE) Working Paper no. 212. Washington, D.C. Also forthcoming in A. Chhibber, et al. (eds.), *Reviving Private Investment in Developing Countries*, Amsterdam, North-Holland, 1992.

——. 1990. "Inflation and the Costs of Stabilization. Historical and Recent Experiences and Policy Lessons." *The World Bank Research Observer* 5 (2)(July):167–86.

van Wijnbergen, S. 1983a. "Credit Policy, Inflation and Growth in a Financially Repressed Economy." *Journal of Development Economics* 13 (April):45–65.

——. 1983b. "Interest Rate Management in LDC's." *Journal of Monetary Economics* 12 (September):433–52.

——. 1985. "Trade Reform, Aggregate Investment and Capital Flight. On Credibility and the Value of Information." *Economic Letters* 17 (4):369–72.

World Bank. 1990. "Adjustment Lending Policies for Sustainable Growth." World Bank, Policy, Planning and Research (PPR) Working Paper no. 14. Washington, D.C.

Comment

Dani Rodrik

This is a very useful chapter, summarizing neatly much of what we know about the theory of and evidence on investment behavior in developing countries. Luis Serven and Andrés Solimano do an exemplary job of discussing the major linkages between macroeconomic stabilization and investment, and they make good use of both case studies and econometric evidence. Their major worry is the disappointing investment performance after 1982. Their major culprits, although this does not come out particularly strongly in the regressions, are instability and lack of policy credibility.

I would be the last person to quarrel with these conclusions. I agree with the emphasis on instability, and I share the implicit view in the chapter that, no matter how much investment efficiency is enhanced by adjustment programs, economic recovery will require a substantial increase in investment also. What I would like to do in my comments is broaden the discussion on the determinants of the private investment response to the 1982 shock.

But first a few small comments. While I think the use of some country cases is helpful, the section presenting them as it presently stands is an awkward mixture of factual description and hypothesized causal links. Since the theoretical discussion and econometric evidence do not come until later, the explanations advanced as to why, for example, Bolivia did so much worse in investment than Chile and Mexico are unsatisfactory and smell too much of after-the-fact rationalization. The real message in this section is the diversity in the countries' experiences (Bolivia versus Chile and Mexico, Argentina versus Brazil) even within broadly similar groupings. I would suggest that the case studies be limited to factual descriptions or that the section be moved to the end of the chapter.

Second, the analytical basis of the three country groupings is unclear. The first two groups are classified according to whether they had undertaken adjustment measures; the last group is classified on the basis of the success of its adjustment, that is, by an outcome. I would cut it a bit differently. What distinguishes Korea and Thailand in the last group from the first group (adjusting cum liberalizing countries) is that their adjustment was by and large limited to macro policies and that structural reforms were clearly of secondary importance to their policy-makers. So the three-fold classification really should read: (1) adjusting cum liberalizing countries; (2) non-adjusting countries; and (3) countries adjusting through macro policies primarily. One obvi-

ous benefit of renaming the last category is that this supports one of the main themes of the paper: the primacy of macro stability (over structural reforms) in eliciting the desired investment response.

Third, the theoretical discussion on the determinants of private investment overlooks, except in the case of exchange rate policy, a fundamental property of unsustainable policies: such policies must be reversed at some point, and forward-looking investors will anticipate that reversal. Therefore a monetary squeeze, a reduction in public investment or a reduction in public deficits should not be viewed as an unanticipated change in policy; frequently the private sector will have anticipated them, and hence the investment response to their implementation can be quite different. The arguments made in the chapter regarding the effects of anticipated versus unanticipated devaluations also carry over to these other policy changes.

Fourth, there is somewhat of an imbalance in the chapter between the emphasis on instability and policy credibility in the conceptual discussion and the air time these receive in the empirical work. It is, of course, difficult to do serious econometrics when it comes to credibility issues. Nor would I make too much of the discouraging results obtained in the second-stage regressions with the instability variables (which the authors do not). However, I think a more serious effort could have been undertaken. For example, instead of averaging instability over a decade and a half for each country and reducing the observations to 12, a rolling index of instability covering observations for, say, the most recent four years could have been constructed. This approach would have allowed the time-series dimension to be maintained and the whole estimation to have been done in a single round. At the very least, the sample could be split between the pre- and post-1982 periods to see whether instability had a differential impact.

Now, as I mentioned earlier, one of the important messages of the chapter is the diversity of experience with private investment, even among countries that look superficially similar. Private investment in Brazil has rebounded while in Argentina the slide continues. In Bolivia, the investment response (like Godot) is still awaited, even though the reforms there look not much different from those undertaken in Chile and Mexico. In fact, once the typical economic variables are controlled for, a regression such as the one in table 7-7 typically finds post-1982 country dummies to be statistically significant for a large number of countries. This inter-country variation in investment performance after 1982 is an important puzzle.

Since the usual economic variables do an incomplete job, it stands to reason that much of the variation may be attributable to differences in what might be called the "political transmission mechanism." I use this term to capture the notion that the effect of an external shock on private investment is mediated through the local political economy and through political institutions. What I would like to do is discuss how this fuzzy notion can be operationalized and used to provide insight into inter-country differences in investment response.

Begin by dividing the economy into two groups: capitalists and workers (or, more broadly, the popular sector). As in classical political economy (and in the more recent literature on populism), an appropriate focus is the distributive struggle between these groups. The questions we should ask are (1) how that struggle is affected by the external environment and in turn (2) how it affects private investment. Broadly speaking, each group has one "weapon" in this struggle. The capitalists have economics on their side (in the form of their investment behavior), while workers have politics on their side (in the form of political activity). We can think of the government maximizing a weighted average of the welfares of the two groups, where the weight put on the workers increases with the political activity undertaken by that group. (Political activity by workers in the form of general strikes or election contributions is naturally costly to them.) To carry out its (endogenous) objectives, the government has recourse to a tax on capital, which it uses to finance transfers to workers as well as public investment (which increases the efficiency of private production). Capitalists decide how much to invest, and workers how much pressure to exert on the government, in anticipation of how these decisions will shape government policies.

The framework leads to a picture as in figure 7–C–1. The KK schedule shows the capitalists' "reaction function": it is downward-sloping because increased redistributive activity by workers translates into a higher tax rate on capital. RR is the workers' "reaction function": it, too, is downward-slop-

ing because a rise in private investment increases real wages, reducing the marginal benefit of redistributive activity (thanks to the concavity of the utility function). The figure shows a political-economy Nash equilibrium.

Now consider an external shock in the form of an increase in the world interest rate. The KK schedule is shifted downward as a consequence, as the opportunity cost of private investment is now larger. Figure 7–C–2 shows the new equilibrium. Two results are noteworthy. First, political activity by workers increases, the implication being that the effect of the external shock is magnified by the distributive struggle at home. As shown in figure 7–C–2, the net effect on investment can be decomposed into two components: (1) the direct economic effect of the shock; and (2) the indirect effect resulting from the interaction of the shock with the local political economy. Second, the extent of the magnification depends on the slopes of the RR and KK schedules. For example, the flatter RR is (without crossing over to the other side of KK), the larger the magnification effect. These slopes are in turn functions of primitive political parameters: the slope of RR will depend on the opportunity cost of political activity, the responsiveness of the government to political pressure, and the government's own ideology, among other things.

In a full-fledged model many more things can and do happen. The point is simply that such a framework can provide another layer of analysis in addition to the usual economic one. Returning to the original puzzle about diverse country experiences, it can help us trace our way from the external shock to the investment response through the political context. It can help us understand why Argentina, with its populist tradition (which translates into a flatter RR schedule), suffered a more severe investment collapse than did Brazil, with its technocratic tradition. It can help us understand why some countries are able to manage external shocks so much better than others. More generally, it can help us think more analytically about that elusive concept, "the investment climate."

Figure 7–C–1. A Political-Economy Nash Equation
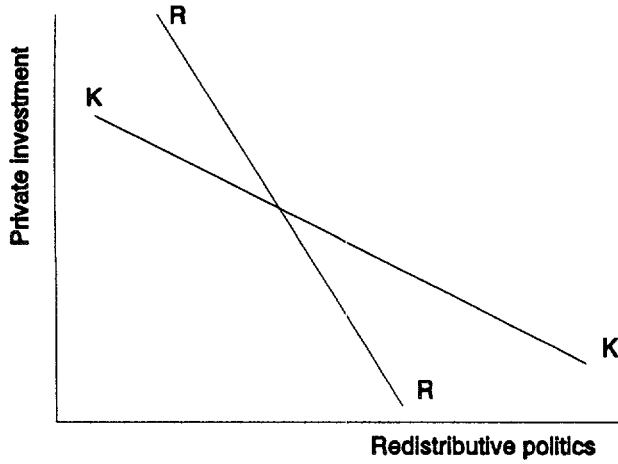
KK — Capitalists' "reaction function."
RR — Workers' "reaction function."
Source: The author.

Figure 7–C–2. Effect of Political Shock

A. Technocratic Government

B. "Populist" Government
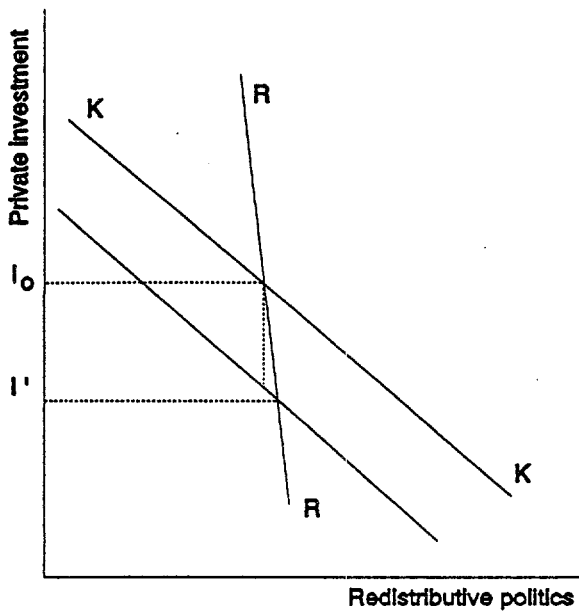
KK — Capitalists' "reaction function."
RR — Workers' "reaction function."
I — Investment.

Source: The author.

138
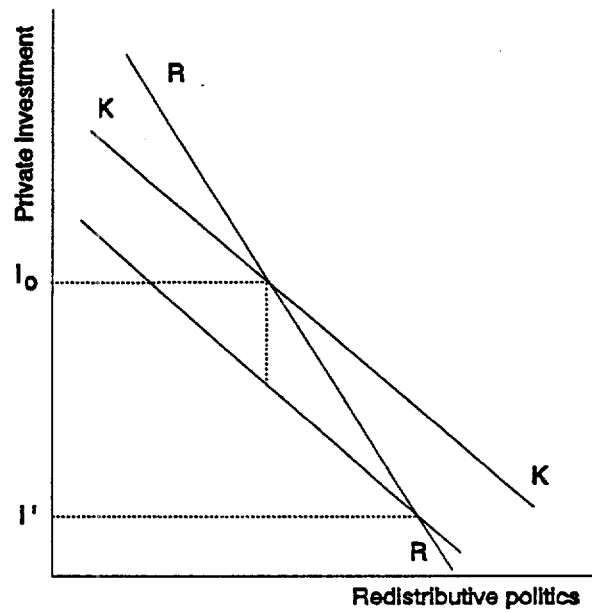
Public Policy and Private Saving

Klaus Schmidt-Hebbel and Steven B. Webb

Introduction

Saving—A Central Issue for Public Policy

Faster economic growth is a major objective of economic policy in most developing countries. Normally faster growth requires a higher quality and quantity of investment. In turn, more resources for investment require higher levels of saving, which, in the absence of significant flows of foreign saving, have to come from increased national saving. Thus, policy-makers need to know what policies can raise national saving in the short and medium terms, and they need to be aware of how policies pursued for other objectives will affect saving by the private sector.

This chapter focuses on two categories of ways in which public policies can affect national saving. One is through policies that change public sector saving, and the second, more indirect, channel is through policy changes that affect variables to which private saving is sensitive.

With regard to fiscal policies, this chapter shows that raising public saving is the most direct, powerful and immediate way that government policy can contribute to higher national saving. The private sector will not offset most of the increase in public saving. On average, a $1 increase in public saving is only partially offset by a decline in private saving, which ranges from $0.16 to $0.50 for a sample of 13 developing countries. Hence, fiscal reform, aimed at reducing unsustainable budget deficits, will be effective in achieving the objectives of both stabilization and higher national saving.

Adjustment policies that raise growth are by far the most effective ways to raise private saving. Consistent with the results of previous studies using national income, this chapter shows that, on average, it is possible to achieve a 1 percentage point increase in the rate of household saving by increasing either trend per capita income by 4 percent or its growth rate by 2 percentage points, based on a sample of 10 low- to medium-income developing countries. The impor-

tant implication is that when policies reform the incentive structure of developing economies in a way that spurs growth, the increased income will feed back into higher private and national saving, providing resources for even higher growth. Hence, successful structural reforms can move countries out of the initial trap of low resource mobilization and slow income growth and give rise to a virtuous cycle of mutually reinforcing saving and growth, as illustrated by the East Asian experience.

Usually, the effects of policy reforms on private saving through the variables directly affected by the reforms are not large or direct. For instance, higher real interest rates and increased financial assets brought about by liberalization of the domestic financial system, or reduced uncertainty and lower inflation stemming from successful stabilization, often have ambiguous or at best minor positive direct effects on private saving. If the policy reforms are effective in raising growth, however, they make a strong indirect contribution to higher private saving.

Saving Rates in Developing Countries: 1960–87

Saving has declined in many developing countries since the second half of the 1970s, as measured by both the average ratios of gross national saving (GNS) to gross national product (GNP) and of gross domestic saving (GDS) to gross domestic product (GDP): figure 8-1 shows the averages for 83 developing countries.[1]

Figure 8-1 confirms two stylized facts. First, the gap between the national and domestic rates of saving was small in the 1970s in relation to that in the 1960s and 1980s, a reflection of the low real rates of interest in the 1970s. In the 1980s, however, foreign factor payments by developing countries increased sharply because of the combined effect of higher ratios of interest rates and foreign debt to output.

Second, rates of saving are procyclical, a characteristic that was probably clearest during the recession of the early 1980s, when the rates declined sharply. To some extent at

Figure 8–1. Gross Domestic Saving/Gross Domestic Product and Gross National Saving/Gross National Product, 1960-87

(unweighted averages for 83 developing countries)
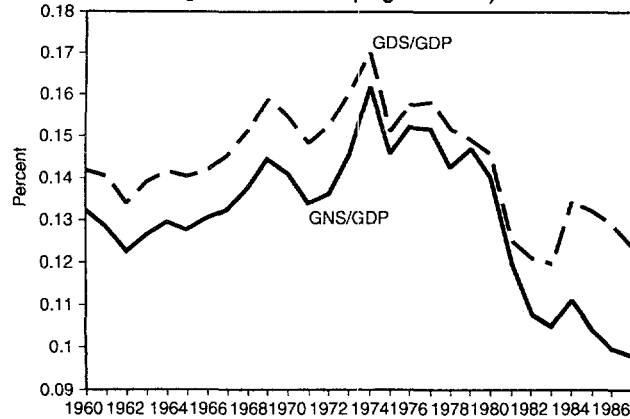
Source: World Bank data.

least, consumption is smoothed over the business cycle in developing countries, a point that is at the center of the discussions in the following sections.

Figure 8-2 shows the rates of saving in four main regions. The long-run decline in the rates of saving is mainly an African phenomenon: there they fell by half, going from 12 percent of GDP in the 1960s and early 1970s to 6 percent in the 1980s. Although the rates in Latin America and the Caribbean (LAC) suffered in the 1980s, they did not fall below their levels in the 1960s. The procyclical behavior of saving during the early 1980s was apparent in all regions except Europe, Middle East and North Africa (EMENA).

Possibly the most striking feature brought out by figure 8-2 is that the average rates of saving in Africa and Asia were close to each other during the 1960s (around 12 percent of GDP) and significantly below those of EMENA and LAC. After 1969, however, the rates in Africa and Asia

Figure 8–2. Gross Domestic Saving/Gross Domestic Product in 83 Developing Countries, 1960-87

(unweighted averages by region)
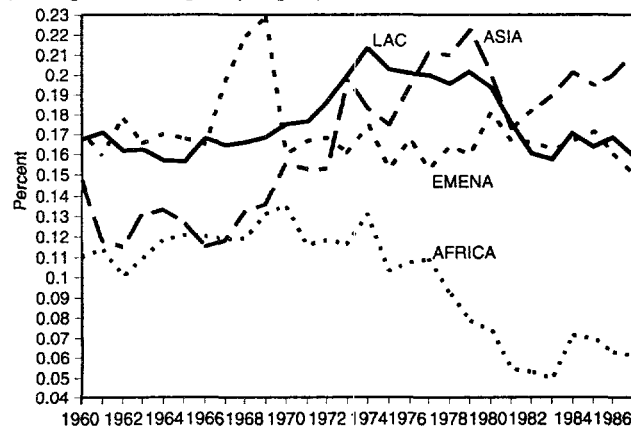
Source: World Bank data.

started to diverge radically from each other: those in Asia almost doubled, reaching 22 percent of GDP, while those in Africa fell by half to, as noted, 6 percent. These trends illustrate the phenomena mentioned earlier: the virtuous cycle of high growth and saving, and the vicious cycle of stagnation and low saving.

Objectives and Organization of the Chapter

This chapter uses new empirical evidence to assess the determinants of private consumption and saving and from that to draw conclusions about the ability of public policy to raise the rates of private and national saving.

The next section reviews the empirical evidence in previous studies on the main economic and demographic determinants of saving in developing countries. The studies surveyed here for the most part used national rates of saving in their statistical analysis. To improve the understanding of the behavior of the private sector, this chapter reports on two statistical investigations of aggregate private consumption and household saving rates in developing countries.

The third section discusses the specification of the model, the characteristics of the data, and the estimation techniques used here.

The fourth section, which draws heavily on Corbo and Schmidt-Hebbel (1991), presents the results of the estimations of the consumption function for a panel sample of 13 developing countries, focusing on the sensitivity of consumption to direct and indirect public policy and the implications for the effectiveness of fiscal policy in raising national saving.

The first empirical evidence on saving behavior of households in developing countries, which was based on a 10-country panel sample, is presented in the fifth section, in keeping with Schmidt-Hebbel, Webb and Corsetti (1992).

The policy implications of the findings are discussed in the final section. The section highlights the significant effectiveness of, first, fiscal reforms in raising national saving immediately through increases in public saving and, second, structural adjustment/growth policies in raising national saving over the medium term through a strong response of private saving to higher growth.

Survey of Previous Studies

There are many earlier empirical studies of saving in developing countries (for surveys, see Mikesell and Zinser 1973, Gersovitz 1988 and Deaton 1989). Before delving into an issue-by-issue discussion of the literature, it is useful to note the types of data they used, because the differences in results usually derive from the differences in the data sets.

Typically the studies used a combination of cross-section and time-series data on the rates of national saving (see, for instance, Collins 1989; Fry 1978, 1980 and 1988;

Giovannini 1983 and 1985; and Gupta 1987).[2] The advantage of this procedure was that more years of data were available for more countries and, it was argued, private saving was a large and normally predominant part of national saving. The drawback of using national aggregates was that public sector saving may have responded very differently from private sector saving. Consequently, the response of public sector saving could have masked that of private sector saving. For instance, when the focus is on national saving, it is possible that changes in public saving in response to shifts in fiscal policy can cause changes in the real interest rate, so that the shift in public saving would overshadow any effect of the interest rate on private or household saving.

A few studies used data on private sector saving or household consumption, but none of the studies of developing countries focused on aggregate household saving or on the combination of household consumption and income from which household saving was derived. Typically only one disaggregation, at best, was available for each country, so that the relevant question was not which was better but rather how to interpret what emerged.

Because data of this type are only gradually becoming available, the data sets vary widely from study to study. Rossi (1988) used a cross-section time-series data set for 49 countries over 10 years. Saving was implicit, since his dependent variable was per capita private consumption as a function of per capita private income, among other things.[3] Lahiri (1988) used time-series for private consumption to run separate regressions for eight Asian countries, with about 20 years of data for each.[4] Despite the differences in the data, the results on most of the major issues are consistent across the studies when data on the private sector were used.

The main determinants of saving or consumption considered in the literature fall into five groups: income and wealth; public deficits and saving; rates of return; foreign saving; and demographic variables. The individual contribution of these variables to private saving in developing countries, as identified by the empirical literature, is reviewed below.

Income and Wealth

Adjustment programs aim to affect income and wealth positively in the long run, although they are far from being under the direct control of policy-makers. Most studies included levels of per capita income and/or rates of growth and total or financial wealth as the relevant determinants of income and wealth.

The level of per capita income is hypothesized to have a positive effect on the rate of saving—rich people save more— because they can afford the luxury of doing more to assure their future consumption. The poor are more likely to be at their biological or social minimum level of current consumption. This point does not mean zero saving by the poor

in all years, for they also wish to cushion themselves against fluctuating current income. They have relatively smaller cushions, however, and more frequently find themselves with zero wealth and no opportunity to borrow to sustain smooth consumption in a year of low income (Deaton 1989; and Zeldes 1989). All the studies mentioned in the previous section found that the current level of income had a strong positive effect on the rate of saving.[5]

The rate of growth of income has also been a typical variable in the recent studies on saving in developing countries. Intertemporal optimizing (i.e., permanent income or life-cycle) models of consumption and saving usually predict that faster growth of the income of an individual household will lower its rate of saving, because people will save less now if they know that higher incomes in the future will allow them to have both higher consumption and higher saving in the future. However, faster growth in average per capita (or average household) income could have positive effects on saving. More rapid income growth would raise the average rate of household saving if the growth were relatively concentrated in households with relatively high rates of saving—rich or medium-aged households. For instance, if rapid growth in income is relatively concentrated in household cohorts at an age when they save for old age, it will raise the average rate of household saving. Collins (1989) developed these concepts in a simple model. Rostow (1961) argued that rapid growth in income initially increases the concentration of income, which raises saving and thus contributes to the take-off into sustained growth. A positive coefficient for the growth rate could also reflect the slowness with which people change their consumption habits or could indicate that people have regressive expectations about the level of income. The studies that included real GDP growth, such as Collins (1989), Fry (1978 and 1980), Giovannini (1983 and 1985) and Mason (1986 and 1988), found positive and usually significant effects on the rate of saving.[6]

Consumption-smoothing models in their simple forms predict that most income resulting from temporary fluctuations in income should go into saving. If households are not credit-constrained and the temporary fluctuation does not affect the perception of permanent income, consumption would change only marginally in response to temporary fluctuations, and most of these income variations would be saved and be reflected by changes in saving. Households are usually credit-constrained, however, particularly in developing countries. In addition, Campbell and Deaton (1989) argued that, at least in industrial countries, current shocks drive perceived permanent income, with no distinction between flows of current and permanent income. These considerations imply that households would vary consumption in response to temporary income fluctuations, and thus changes in saving would not offset all temporary changes in income. Most empirical studies of developing countries did

not look closely at the effect of fluctuations in income on saving. Gupta (1987) is an exception; he consistently found a significantly positive response by the level of saving to temporary fluctuations in income, with a coefficient ranging from 0.2 to 1.0.

Theoretical models of intertemporally optimizing consumption or saving typically have wealth as a key argument. Of course, permanent income can be viewed as the stream of income from total wealth, but a narrower definition of wealth is the assets that can be exchanged for current consumption. Theory clearly predicts that greater wealth will reduce saving as a share of current income. Since most concepts of wealth are not easily observed directly, very few empirical studies of saving in developing countries used them. Schmidt-Hebbel (1987) used five alternative measures of total wealth for an empirical intertemporal consumption model for Chile, based on different assumptions on how expectations of future variables are formed. Behrman and Sussangkarn (1989) had micro data on household wealth and saving. Both studies found a negative effect of wealth on saving.

Monetary or financial assets lessen a household's dependence on sources of current income when income declines transitorily. The reason is that consumers can draw on the assets to maintain their levels of consumption. Hence, holding a higher stock of assets over the business cycle allows a household on average to maintain a higher rate of consumption, which depresses the rate of saving. In addition, holdings of monetary assets are an important component of total consumer wealth.[7] The implication is that monetary holdings have a second, negative influence on the rate of saving, a conclusion that previous studies did not test for.

Government Deficits and Government Saving

Fiscal stabilization programs aim to lower public sector deficits or raise public saving (equal to public investment minus the deficit). A key question on fiscal adjustment is whether changes in government deficits or government saving cause offsetting changes in private saving, because of the effects of government deficits on the perceived permanent income of households. A voluminous empirical literature is devoted to the Ricardian equivalence proposition as reformulated by Barro (1974), which states that issues of public debt are macroeconomically undistinguishable from increases in taxes and hence that public saving should be exactly offset by private saving.

The empirical studies of industrialized countries have led to widespread rejection of the Ricardian hypothesis. The main explanation for rejection is pervasive credit constraints on households.[8] A study of a set of developing countries by Montiel and Haque (1987) found that constraints on borrowing were the main cause for the deviations from Ricardian equivalence.[9] Constraints on borrowing, with current income or holdings of financial assets used as a proxy, were

also identified as major determinants in Rossi's (1989) cross-developing country study on private saving.

Rates of Return

Controls on interest rates and credit rationing are common in many countries. As a result, real interest rates on deposits and targeted credits are often very low or negative, and loanable funds are in short supply—conditions that effectively ration investment. Financial reforms often raise the real rates of interest with the aim of improving the efficiency of resource use and increasing private saving. While financial reforms are justified on the grounds of improving the allocation of saving and raising the efficiency of investment as a result of liberalized flows of credit and interest rates, higher real rates of interest have an ambiguous effect on the quantity of private saving. The reason is that an increase in the real return on saving has two offsetting effects. First, a higher real interest rate decreases the present cost of future consumption, so that it is attractive to consume less now and more in the future and thus to save more today. Second, it is no longer necessary to save as much to achieve a target level of future consumption, so that a higher real interest rate allows greater consumption today and tomorrow, and thus reduces the need to save today.

Given this theoretical ambiguity, the effect of the real interest rate on saving becomes an empirical matter. Economists have heatedly debated what the empirical evidence indicates. McKinnon (1973) and Shaw (1973), and more recently Balassa (1989), argued that the rate of return on saving as indicated by the real rate of interest would have a positive effect on the rate of saving. Fry (1978 and 1980) found statistical evidence to support the contention that higher real rates of interest contributed to higher rates of saving. In his recent book, Fry (1988, p. 140) conceded that the magnitude of the effect is small, although the coefficient is statistically significant. Thus, only large changes in real interest rates would be economically important. Giovannini (1983 and 1985) revisited Fry's earlier work and found that two observations (Korea in 1967 and 1968) accounted for the entire result. On the basis of an expanded data set, Giovannini concluded that the interest rate did not contribute significantly to explaining saving. Both Fry and Giovannini used national saving data, which are especially problematic for testing the effects of interest rates, as discussed above.[10]

Gupta (1987) found some support for a positive effect of interest rates on saving in Asia but not in Latin America. Schmidt-Hebbel (1987) and Arrau (1989), who estimated intertemporal elasticities of substitution in private consumption for Southern Cone countries, found the elasticity to be around 1.0, the implication being that consumption was insensitive to the interest rate.

While higher real interest rates are unlikely to raise private saving and hence total private wealth, the portfolio

composition of private wealth may be altered substantially. For instance, negative real interest rates on deposits cause a substitution of assets away from bank deposits into real assets, especially consumer durables, and into foreign currency assets via capital flight.[11] From the policy-maker's perspective, these are good reasons for avoiding artificially low and, in particular, negative real interest rates. However, the evidence should not be interpreted as a responsiveness of private saving to changes in real interest rates.

While inflation enters into a calculation of the real interest rate, it may also have independent effects. A high level of inflation often contributes to stagnation in output or outright recession, effects that are picked up by the income variable. Greater inflation also increases instability and uncertainty about future variables, including levels of income and rates of return on real assets. Consequently, inflation has a theoretically ambiguous effect on private saving, in that uncertainty about the future value of assets could either discourage saving because of the substitution effect of the lower effective rate of return or could encourage saving for precautionary motives. Similarly, greater riskiness of income streams, which inflation often exacerbates, affects private saving ambiguously, depending on the form of the underlying utility function.[12]

Gupta (1987) and Lahiri (1988) included the expected and unexpected components of the rate of inflation as separate determinants of saving; Gupta also included the nominal interest rate, while Lahiri did not. Gupta's results differed sharply by region. In Asia, both expected and unexpected inflation had positive and significant coefficients. In Latin America, neither coefficient was significant with the preferred estimation technique. In Lahiri's all-Asian sample, the eight separate country regressions showed a mixture of signs on both inflation variables. Overall, there was no clear evidence that inflation affected the rate of saving.

Foreign Saving

During most of the post-World War II period, developing countries have not had access to unrestricted voluntary lending from private commercial sources, the exception being the brief period of 1976–81 before the debt crisis. Even during that short span many developing countries maintained domestic restrictions on foreign borrowing. Thus, for most of the relevant period, foreign saving has been exogenous with respect to household decisions on saving, and the level of foreign saving has acted as a constraint on credit that has held domestic spending down.

A number of empirical studies have included foreign saving as a determinant of the rate of saving. Fry (1978 and 1980) and Giovannini (1985) found significant and negative coefficients on foreign saving, although they were also significantly less than one. Chenery and Strout's (1966) non-econometric analysis also found that inflows of capital initially had a negative impact on domestic saving, although the secondary effects on the growth of capacity worked the other way. Giovannini (1983) obtained coefficients with mixed and insignificant signs. Gupta (1987) got positive coefficients that were significant for Latin America but not Asia.

The results seem to have depended on the sample and model specification. All the studies with the foreign saving variable were looking at total saving, so that the results may have reflected the extent to which inflows of capital went straight into investment by the public and corporate sectors, which counts as an increase in saving.

Demographic Variables

Much research has been conducted on the influence of demographic variables on saving (Collins 1989; Hammer 1987; Leff 1969; Mason 1986; and Webb and Zia 1990; see Hammer 1986 for a survey). This chapter touches on the topic only cursorily, because for the most part demographic changes are too gradual to show up in the short time series of this study. The life-cycle models of saving imply that demographic variables should affect the rate of saving. The dependency ratio—the number of people under the age of 15 or over 65 as a share of total population—is the most common variable. In the life-cycle models, older people work less and live at least partially off their saving. Households with more children at home are also thought to save less because they defer their saving for retirement until their children have moved out (a change that raises the per capita income of the parents) or because they anticipate that their children will provide support in their old age. Thus, it would be expected that the rate of saving would depend negatively on the dependency ratio.

Early work on this question, especially that of Leff (1969), found that the dependency ratio had a strong negative effect on saving. Subsequent studies challenged the robustness of his results and looked more carefully at the theory and measurement of demographic variables (Mason 1986). Again, the results seem to have depended a lot on the sample and on the other variables included. Mason (1986) and Collins (1989) got good results using an interaction term of the dependency ratio with the growth rate of per capita income.

Summary

To summarize the empirical findings of previous studies, there is a broad consensus that faster growth and high incomes contribute to higher rates of saving. Evidence on the pervasiveness of liquidity constraints suggests indirectly that an increase in public saving is not neutralized by an offsetting decline in private saving. Some evidence indicates that greater monetary wealth, with income held constant, leads to lower saving. There is still controversy over the effect of

inflows of foreign capital, the real interest rate and inflation, and demographic variables.

Empirical Approach

The aim here is to provide fresh evidence on some of the above controversies by analyzing saving behavior at the private and household levels, in contrast to most of the above-mentioned studies, which focused on saving at the national level.

Specification

Since the intent is to draw implications about the effectiveness of different policies in affecting private and national saving, the specification is not based on a particular model for decisions on saving or consumption. Rather, it contains a broad range of variables consistent with different hypotheses about saving, with the emphasis on those affected by stabilization and adjustment policies.

The specification of private consumption in the next section and household saving in the following section is consistent with the long-run relation between income, wealth and consumption posited by the life-cycle or permanent income hypotheses. The short-term variables that affect intertemporal decisions on consumption or that restrict current spending on consumption, common to both specifications, are the real rates of interest and inflation and the variables that proxy the constraints on liquidity (such as current income, domestic monetary assets and foreign saving).

The two sections differ in focus, however—differences that are determined in part by the dissimilarities in the data samples, as discussed below. The specification in the section on private sector saving allows the influence of fiscal policies on private consumption decisions to be quantified, distinguishing between transitory and permanent changes in public expenditures and taxes. The section on household saving emphasizes immediate variables in the household budget, such as current income, interest rates, household transfers and monetary wealth, and long-term determinants of saving, such as economic growth, levels of per capita income and demographic variables.

A final common feature of the specification is the treatment of trend variables. Co-integration tests and estimation of error-correction models could not be conducted because the time series were too short[13] and the samples combined cross-country and time-series data.[14] As an alternative, every dependent or independent variable with a trend was divided by a common scale variable. Private disposable income was used in the case of private consumption and GDP in the case of household saving. Hence, the final specifications are for the average rate of private consumption and the average rate

of household saving as linear functions of other rates and non-trend variables such as inflation and interest rates.

Measurement Problems

National accounts calculate private consumption residually as the difference between output and the sum of the other, independently estimated, components of aggregate demand. Hence consumption is affected by measurement errors in all the other accounts. Saving, calculated as the difference between income and consumption, is even more affected by estimation errors in its two components, because they may be very large relative to saving. For instance, income earned in informal markets or in the underground economy is not accounted for in the national accounts, implying that official saving underestimates actual saving, particularly private saving.[15]

In addition to errors in measurement, national saving and its sectoral composition are plagued by a host of methodological shortcomings,[16] such as the inclusion of consumer durables and public investment in consumption, the way social security and pension payments are treated and the exclusion of capital gains and losses, which represent changes in net wealth. Of particular concern in high inflation countries is the inflation component of the interest payments on public debt, which are often very large.[17] This repayment of the principal that private creditors must set aside to maintain the real value of their wealth compensates them for the capital loss from inflation they would have suffered in the absence of this payment.

Data

The research work on consumption and saving behavior presented here uses previously unanalyzed cross-national data from 10–13 countries. One study uses data on the consolidated non-financial public sector deficit, adjusted for the inflation component of interest payments by the public sector, to construct the variables for public saving and private disposable income for the estimations of the private consumption function. The other study uses aggregate household data to estimate the household saving function (as opposed to data on the private sector or national saving), since households are the relevant units for the consumption or saving theories to be tested.

Private consumption. The data set for the estimations of private consumption in the next section combine annual time series for 13 developing countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Ghana, Mexico, Pakistan, Peru, the Philippines, Thailand, Venezuela and Zimbabwe) for the period 1980–87. The time series were short because they were restricted by the availability of data for the deficits and

saving of the consolidated non-financial public sector, which play a crucial role in the consumption specification.

Household saving. The data for the estimations of household saving combine annual time series for 10 countries (Botswana, Colombia, Ecuador, Honduras, Korea, the Philippines, Paraguay, Thailand, South Africa and Taiwan) for which there were at least 8 and as many as 13 consecutive observations from the subperiods in the 1970–85 period. (The appendix discusses the sources for the two data sets.)

Estimation Techniques

This discussion begins with the common elements of the estimation strategy applied in the next two sections and then turns to the specific features of each.

For the two panel samples (pooled cross-country time-series), the panel fixed-effect estimator was the basic regression model. This class of models assumes that the empirical results are conditional on the particular sample used in the estimation. Alternative estimators, such as the error component (or random effect) model, treat the available observations as a random sample from some universe.[18] Given the small size of the country samples used here and the marked differences in the economic features of the countries, the fixed-effect estimator seemed to be a more appropriate choice.

An important caveat is the low number of cross-sectional units considered in the estimation, since the properties of panel data models are based on asymptotic results for large samples. The choice to exploit a data set consistent with the theoretical propositions to be tested limited the sample to only those countries for which data on private consumption and household saving were available for an adequate time span (seven annual observations).

The private consumption function is estimated by weighted least squares fixed-effects to take care of heteroskedasticity. Because of possible simultaneity between the dependent and one right-hand variable (foreign saving), fitted values of the latter variable were used.[19]

The choice of fixed-effects panel estimation for the household saving function presented later was verified by a set of specification tests between competing models.[20] The first test carried out was the Breusch-Pagan test for the presence of both cross-sectional and time-related effects in the residuals of a simple OLS estimate.[21] Rejection of the OLS implies that fixed effects are superior. The second test applied here is the Hausman specification test, which compares fixed-effect against random-effect estimators.[22] Random-effect estimators are more efficient but are consistent only in the absence of a correlation between the included regressors and the errors. Fixed effects are less efficient but still consistent when the above condition is not satisfied. Rejection of the random effects as inconsistent implies that fixed effects is

superior. The results of the tests consistently support the use of the fixed-effects model, as discussed later.[23]

Finally, instrumental variable estimation was used in the estimations of household saving to take care of the possible simultaneity bias stemming from the interaction between the dependent variable and one right-hand variable (the domestic real interest rate).

Private Saving

The empirical evidence reviewed earlier suggested that private rates of saving are usually not very sensitive to changes in macroeconomic and financial policies. Raising real interest rates often induces shifts in the composition of portfolios but has ambiguous or minor effects on saving. The rates of private saving are sensitive to the business cycle as a result of consumption smoothing.

The rate of saving for the public sector can be increased directly by more stringent fiscal policies and reforms of public enterprises, local government finances and the central government budget. If the rate of private saving is negatively affected by an increase in the rate of public saving, however, the prospects for an increase in the rate of national saving will be much reduced. To examine the effect of public saving on national saving, this section first provides evidence on the link between private consumption and government saving using a general consumption specification. Then it discusses the implications for the design of policies to increase national saving.

Public Policies and Private Consumption

Fiscal policies directly affect consumption or saving through public saving (or the deficit) and its composition. As indicated in the survey, the nature of the effect varies radically with the way that the private sector perceives government debt—in accordance with the Ricardian hypothesis or the Keynesian. If the stringent conditions required for Ricardian equivalence are satisfied (i.e., if the private sector is rational forward-looking, satisfies the permanent-income hypothesis [PIH], and incorporates the intertemporal public budget constraint into its own), then an increase in public saving accomplished through lower public spending is fully offset by an increase in private consumption. Since disposable income does not change, the reduction in private saving matches the increase in public saving. A rise in public saving does not affect private consumption at all if it comes about through higher taxes. Since higher taxes reduce disposable income, a reduction in private saving matches the increase in public saving (the latter being macroeconomically equivalent to issuing more public debt). The opposite results are predicted by the Keynesian hypothesis: current (permanent) taxes directly affect private consumption, but

current (permanent) levels of public spending have only indirect effects.

Fiscal and monetary policies have indirect effects on private consumption through the impact of public deficits and their financing on the major prices influencing private consumption: real interest rates, inflation and the real exchange rate. Judging from the evidence surveyed earlier, consumption seems to be insensitive to real interest rates. The first order effect of inflation is on the composition of the stock of saving and not on the levels of saving and consumption. There may be second-order effects that reduce measured saving, however, if inflation causes capital flight or flight into consumer durables or if it raises precautionary saving by raising uncertainty. An anticipated devaluation leads to changes in the timing of investment and consumption decisions, but over the medium term, once the anticipated devaluation has occurred, the fluctuation in the real exchange rate has a clear predicted effect on average saving.[24]

Monetary policy and financial reform affect the aggregate of monetary and quasi-monetary assets. Broad money increases consumption because it reduces the extent of the constraints on liquidity and also because it is a major component of financial wealth.

Finally, and less related to direct public policies, foreign saving affects private consumption when it is a (partial) substitute for private saving in a regime of binding foreign resource constraints.

A good starting point for the discussion of a relevant framework for assessing the impact of public policies on private consumption is to refer to a standard form for testing the Ricardian equivalence proposition, based on Bernheim's (1987) survey:

$$(8\text{-}1) \quad C_{Pt} = \alpha_0 + \alpha_1 (YN_t - T_t + i_t D_t) + \alpha_2 (T_t - E_{Gt} - i_t D_t)$$
$$+ \alpha_4 D_t + \alpha_5 W_t + v_{2t}$$

where

C_P	=	private consumption
YN	=	national income
T	=	tax revenue net of transfers and subsidies to the private sector
i	=	the nominal interest rate
D	=	government domestic debt
E_G	=	public spending
W	=	private wealth (net of government domestic debt),
u_2	=	a stochastic error term, and
t	=	a time index.

Hence the first right-hand determinant is private disposable income, and the second is the nominal or total government surplus.

Three hypotheses can be tested with this specification:

(1) the Keynesian hypothesis— $\alpha_0 > 0$, $\alpha_1 > 0$, other coefficients 0;

(2) the PIH without Ricardian equivalence— $\alpha_4 > 0$, $\alpha_5 > 0$, other coefficients 0; and

(3) the Ricardian equivalence hypothesis— $\alpha_1 = \alpha_2 > 0$, other coefficients 0.

This standard specification has various shortcomings, which can be corrected.[25] First, public saving and not the public surplus should be the relevant determinant in equation (8-1), because public investment adds to real capital and therefore constitutes "net wealth" in the sense of Barro (1974). Second, under inflation only the real component of domestic interest payments should enter both private disposable income and the government surplus (saving).[26] Third, permanent, not current, private disposable income and public surplus (saving) should enter equation (8-1) for a fair test of the Ricardian proposition. Fourth, additional potential determinants of consumption, such as foreign payments and the real interest rate or inflation, should be included. Finally, the role played by the public sector surplus may not reflect Ricardian behavior but could result from direct crowding-out effects and from institutional arrangements through which the public sector captures private saving either directly or through the domestic financial markets. The latter two hypotheses are not distinguishable, so that reference should be made to the joint Ricardian/direct crowding-out hypothesis when introducing the public sector surplus as a determinant of private consumption.

The following specification for the ratio of private consumption to private disposable income takes care of the above-mentioned shortcomings of equation (8-1). In addition, dividing through with private disposable income reduces the extent of non-stationarity of the time series and makes the cross-country data comparable. Hence, the rate of private consumption is specified as:

$$(8\text{-}2) \quad \frac{C_{Pt}}{DY_{Pt}} = \beta_0 + \beta_1 \frac{PDY_t}{DY_{Pt}} + \beta_2 \frac{PS_{Gt}}{DY_{Pt}} + \beta_3 r_t + \beta_4 INF_t$$
$$+ \beta_5 \frac{M_t}{DY_{Pt}} + \beta_6 \frac{FS_t}{DY_{Pt}} + v_{3t}$$

where

C_P	=	private consumption
DY_P	=	current private disposable income
PDY_P	=	permanent private disposable income
PS_G	=	permanent public saving
r	=	real interest rate
INF	=	domestic inflation
M	=	broad money
FS	=	foreign saving, and

υ_3 = a stochastic error term.

Permanent private disposable income and permanent public saving are consistent with the following definitions of their corresponding current values:

(8-3) $\quad DY_{Pt} = GDP_t - NFP_{Pt} - T_t + r_t D_t$

and

(8-4) $\quad S_{Gt} \equiv T_t - C_{Gt} - NFP_{Gt} - r_t D_t$

where

GDP	=	gross domestic product
NFP_P	=	net foreign payments made by the private sector
S_G	=	current public saving
C_G	=	public consumption
NFP_G	=	net foreign payments made by the public sector
T	=	tax revenue net of transfers and subsidies to the private sector
D	=	government domestic debt.

Note that now the coefficients β_0, β_1 and β_2 in equation (8-2) reflect more appropriately the Keynesian, permanent income and Ricardian/direct crowding-out hypotheses, respectively. According to the definition in equation (8-3), public saving is now consistent with the concept of an operational public deficit. Under the Ricardian hypothesis, $\beta_1 = \beta_2$; hence, the Ricardian concept of permanent private disposable income results from adding PDY and PS_G, which is permanent GDP net of permanent total net foreign payments and permanent public consumption. Under the direct crowding-out hypothesis, β_2 is positive and could easily be larger than β_0 or β_1.

Equation (8-2) was estimated using the data set introduced earlier, with operational non-financial public sector deficits for 1980–87 for 13 developing countries. Table 8–1 presents the results of the estimation for a fixed-effects weighted least squares panel. The results differ based on the assumptions made about permanent public saving,[27] the inclusion of the rates of real interest and inflation, money, and period dummies for 1980–82 or 1980–83.[28]

The main results are robust to the different specifications and estimation methods. While the marginal propensity to consume out of current private disposable income hovers around 0.60 (the fixed-effects constants vary between 0.49 and 0.79, depending on the country), the propensity to consume out of permanent income is significantly lower, varying around 0.24. Therefore, the evidence on intertemporal smoothing of consumption in these developing countries is only partial: for each percentage point increase in current (transitory) income vis-a-vis permanent income, the rate of

private consumption declines by one-fourth—much less than the 1.0 fall predicted by the PIH.

Private consumers respond to long-term or "permanent" public saving, although they do so by much less than the 1.0 coefficient predicted by either the Ricardian or the direct crowding-out propositions. Nonetheless, the impact of public saving is sizable: for each $1 increase in public saving, private consumption rises (private saving declines) by an average of $0.44 (under the forward-looking hypothesis) to $0.49 (under the static expectations hypothesis). The hypothesis here is that this coefficient reflects both the direct crowding-out effects of public deficit financing and the Ricardian behavior of private consumers, and is presumed to be more the former than the latter.[29]

Real interest rates, inflation rates and broad money do not emerge as consistently significant influences on private consumption in the results obtained here. Hence, lines 1.4–1.6 and 2.4–2.6 of table 8–1 show the results with these variables omitted.

The coefficient of the real interest rate is negative in most results but is never significant at the 5 percent level. This outcome is consistent with most of the empirical literature discussed above. Similarly, inflation has a non-significant, small and negative influence on private consumption.

Broad money plays an ambiguous, non-significant role under the forward-looking specification. However, it shows a small, negative and significant coefficient under the static-expectations alternative, a result that contradicts the predictions of its sign.

Finally, foreign saving has a major and consistently positive effect on private consumption in the sample of 13 developing countries. According to the results, foreign saving is a partial substitute for private saving: for each $1 increase in the current account deficit, private consumption rises by an average of $0.42, the remainder financing public consumption or domestic investment.

The results discussed here tend to reject the Keynesian, the permanent income and the Ricardian/direct crowding-out hypotheses in their extreme forms, which are mutually exclusive. Rather, there is strong evidence for the joint contribution of Keynesian cum liquidity constraint determinants as well as permanent income and Ricardian/direct crowding-out elements in explaining private consumption in developing countries during the eighties.

Effects of Public Saving on Private Saving

Beyond testing for the rejection of each of the main theories, it is also illuminating to compare the relative importance of the significant determinants of private consumption or saving. To analyze the impact of public saving on private saving and hence on national saving, the results with respect to private consumption behavior as reported in table 8–1, based on equation (8-2), are used. Rewriting equation (8-2)

Table 8–1. Private Consumption in 13 Developing Countries, 1980–87: Fixed-Effects Weighted Least Squares Panel Estimation

(dependent variable: the ratio of private consumption to private disposable income [Cp/DYp])

	$\dfrac{PDY_p}{DY}$	$\dfrac{PS_G}{DY}$	r	INF	$\dfrac{M}{DY_p}$	$\dfrac{FS}{DY_p}$	Dummy	R^2_{adj}	Durbin-Watson
I. Forward-looking PS_G									
1.1 Complete specification Without dummies	0.260 (4.9)	0.481 (7.5)	0.008 (0.6)	-0.026 (-0.7)	-0.013 (-0.3)	0.425 (7.2)	-	.52	1.09
1.2 Complete specification Dummy 1980–82	0.226 (4.1)	0.417 (6.1)	-0.006 (-0.5)	-0.030 (-0.8)	0.057 (1.3)	0.465 (6.2)	-0.024 (-3.3)	.46	1.24
1.3 Complete specification Dummy 1980–83	0.283 (5.1)	0.434 (6.4)	-0.001 (-0.1)	-0.018 (-0.5)	0.071 (-1.6)	0.490 (6.3)	-0.021 (-2.9)	.49	1.20
1.4 Partial specification Without dummies	0.241 (4.8)	0.473 (7.3)	-	-	-	0.413 (7.0)	-	.52	1.11
1.5 Partial specification Dummy 1980–82	0.207 (4.1)	0.417 (6.2)	-	-	-	0.451 (6.2)	-0.019 (-3.0)	.46	1.24
1.6 Partial specification Dummy 1980–83	0.256 (5.0)	0.422 (6.3)	-	-	-	0.468 (6.2)	-0.017 (-2.7)	.47	1.18
II. Static expectations PS_G									
2.1 Complete specification Without dummies	0.239 (4.5)	0.555 (8.3)	-0.011 (-1.0)	-0.003 (-0.1)	-0.060 (-1.8)	0.381 (5.7)	-	.55	1.11
2.2 Complete specification Dummy 1980–82	0.227 (4.0)	0.514 (6.8)	-0.018 (-1.7)	-0.028 (-0.7)	-0.112 (-2.6)	0.398 (5.1)	-0.018 (-2.3)	.49	1.18
2.3 Complete specification Dummy 1980–83	0.265 (4.5)	0.504 (6.8)	0.015 (-1.3)	-0.008 (-0.2)	-0.110 (-2.6)	0.420 (5.1)	-0.016 (-2.2)	.50	1.16
2.4 Partial specification No dummy	0.237 (4.7)	0.497 (7.2)	-	-	-	0.393 (6.0)	-	.49	1.10
2.5 Partial specification Dummy 1980–82	0.214 (4.1)	0.435 (5.6)	-	-	-	0.376 (4.8)	-0.010 (-1.4)	.41	1.15
2.6 Partial specification Dummy 1980–83	0.243 (4.4)	0.425 (5.5)	-	-	-	0.390 (4.9)	-0.009 (-1.3)	.41	1.13

Note: The t-statistics are in parentheses. The specification corresponds to equation (8-2). The weighted least squares panel results correspond to a specification with weights to take care of the heteroskedasticity resulting from combining different country data. Fitted foreign saving values and not actual values were used in the regressions to address the possible simultaneity between consumption and the current account deficit during 1976-81. The regressors of foreign saving were lagged foreign saving, permanent income over actual income and lagged permanent income over actual income.
Different specifications with dummies for Argentina and Venezuela during some sub-periods were tried. Although the improvement in fits were large (R^2 adjusted around .80), there were only slight changes in the values of the parameters. - denotes variable not included as regressor.
PDY = permanent private disposable income;
DY = current private disposable income;
PD = permanent public saving;
r = real interest rate;
INF = domestic inflation;
M = broad money;
FS = foreign saving.
Source: Calculations by Klaus Schmidt-Hebbel and Vittorio Corbo.

in terms of the levels of private saving and using the coefficients of table 8–1 yield the following equations for private saving:

$$(8\text{-}5) \quad S_{P_t} = (1 - cons_i)DY_{P_t} - 0.24\,PDY_{P_t}$$

$$\text{and} \qquad - 0.47\,PS_{G_t} - 0.41\,FS_t$$

$$(8\text{-}6) \quad S_{P_t} = (1 - cons_i)DY_{P_t} - 0.24\,PDY_{P_t}$$

$$- 0.50\,PS_{G_t} - 0.39\,FS_t$$

where

S_P	=	private saving
DY_P	=	current private disposable income
PDY_P	=	permanent private disposable income
PS_G	=	permanent public saving, and
FS	=	foreign saving.

The coefficients in equation (8-5) are the estimated parameters presented in line 1.4 of table 8–1 (forward-looking permanent public saving), and those in equation (8-6) are from line 2.4 (static-expectations permanent public saving). The country-specific coefficient $cons_i$ is the fixed-effects parameter for country i.

Table 8–2 presents the results of computing the partial effects of various changes in income and fiscal policy variables on private saving, calculated from equations (8-5) and (8-6) after substituting the identities (8-3) and (8-4).

Private saving (or consumption) in developing countries tends to be more sensitive to current than to permanent income shocks, with corresponding marginal propensities in the neighborhood of 0.40 and 0.24, respectively (table 8–2, lines 1 and 3). For each $1 increase in "permanent" or longer term public saving achieved by a "permanent" $1 decrease in public consumption, private saving declines by $0.47–$0.50 (lines 4 and 5)—a far cry from the 1.0 offset coefficient predicted by the Ricardian/direct crowding-out hypotheses. If the "permanent" reduction in the public deficit is achieved by lowering the long-term tax burden, private saving falls by $0.23–26 for each $1 increase in permanent taxation (line 6). By contrast, if permanent income and permanent public saving had the same coefficient, which would be a necessary (but not sufficient) condition for Ricardian equivalence to hold, the effect of long-term taxes on private saving would be zero.

The responsiveness of saving to current income and fiscal policy shocks depends significantly on how the private sector forms its expectations about the permanent variables, as can be seen when comparing the coefficients in columns 1 and 2 of table 8–2. Hence, a $1 increase in current public saving (which determines expected permanent public saving fully under static expectations but only partly under partial perfect foresight) achieved by reducing current public expenditure reduces private saving by $0.16–$0.50, depending on the underlying expectations (line 7). If the cur-

Table 8–2. Public Expenditures and Taxes

Marginal saving propensity with respect to[a]	Marginal saving propensities consistent with equation (8-5)	Marginal saving propensities consistent with equation (8-6)
1. DY_{pt}	$[1 - \beta_0] = [0.29;\ 0.50]$	$[1 - \beta'_0] = [0.28;\ 0.49]$
2. $DY_{pt\text{-}1}$	$-\beta_1/3 = -0.08$ $(SE = 0.02)$	0
3. DY_{pt}	$-\beta_1 = -0.24$ $(SE = 0.05)$	$-\beta'_1 = -0.24$ $(SE = 0.05)$
4. PS_{Gt}	$-\beta_2 = -0.47$ $(SE = 0.08)$	$-\beta'_2 = -0.50$ $(SE = 0.07)$
5. PC_{Gt}	$\beta_2 = 0.47$ $(SE = 0.08)$	$\beta'_2 = 0.50$ $(SE = 0.07)$
6. PT_t	$\beta_1 - \beta_2 = -0.23$ $(SE = 0.09)$	$\beta'_1 - \beta'_2 = -0.26$ $(SE = 0.09)$
7. S_{Gt}	$\beta_2/3 = -0.16$ $(SE = 0.02)$	$-\beta'_2 = -0.50$ $(SE = 0.07)$
8. C_{Gt}	$\beta_2/3 = 0.16$ $(SE = 0.02)$	$\beta'_2 = 0.50$ $(SE = 0.07)$
9. T_t	$-[1 - \beta] + \beta/3$ $- \beta_2/3 = [-0.58;\ -0.37]$	$[1 - \beta'_0] + \beta'_1$ $-\beta'_2 = [-0.75;\ -0.54]$

Note: SE corresponds to the standard error of the parameter(s). Lines 1 and 9 show the minimum and maximum country fixed-effects coefficients $cons_i$.

a. DY_p = current private disposable income.
PDY_2 = permanent private disposable income.
PS_G = permanent public saving.
PC = permanent public consumption.
PT = permanent tax revenue net of transfers and subsidies to the private sector.
S_G = current public saving.
C_G = public consumption.
T = tax revenue net of transfers and subsidies to the private sector.
Source: Equations (8-5) and (8-6).

rent public deficit is reduced by increasing current taxes, however, the effect would be much stronger, because a tax increase affects current and expected permanent private disposable income, in addition to permanent public saving. For each $1 of higher current taxes, private saving declines on average by $0.48–$0.65 (line 9), depending on how expectations are formed.

From the empirical results it is clear that raising public saving is the most effective and sure way to increase national saving—a point made for the United States by Summers (1985). The final impact depends crucially, however, on the way in which the increase takes place—by raising taxes or lowering current expenditures—on how permanent it is perceived to be and on how private consumer expectations are formed.

Increasing public saving helps countries experiencing high inflation and unsustainable current account deficits. For countries that have already made progress with stabili-

zation but that now need to start growing again, raising public saving—for a given level of a sustainable current account deficit—will be required to achieve higher levels of public and private investment.

Household Saving

This section focuses on saving by the household sector, excluding private firms, which were included in the aggregate private sector income, saving and consumption measures of the previous section. The advantage of focusing on households is that they are the natural unit for testing consumption theories. The sensitivity of households to long-term determinants of saving, such as growth and demographic variables, is analyzed here, abstracting from fiscal policy issues, which were at the heart of the preceding section.

Household Saving: Empirical Results

The specification for the rate of household saving, based on the earlier discussion, is:

$$(8\text{-}7) \quad \frac{S}{I} = \frac{S}{I} \ (LITP, \ GITP, \ [LIP-LITP], \ \frac{HT}{I}, \ r, \ INF,$$
$$(+) \qquad (+) \qquad (+) \qquad \quad (-) \quad (?) \quad (?)$$

$$\frac{MQM}{I^{*}}, \ \frac{FS}{I}, \ DEP, \ URB)$$
$$(-) \quad (-) \quad (?) \quad (?)$$

where

S	=	household saving
I	=	household disposable income
LIP	=	the natural logarithm of per capita household disposable income
$LITP$	=	the natural logarithm of trend per capita household disposable income
$GITP$	=	the growth rate of trend per capita household disposable income
HT	=	transfers to households
r	=	the real interest rate
INF	=	the inflation rate
MQM	=	money plus quasi-money at the end of the previous period
I^{*}	=	an average of I in the current and previous years
FS	=	foreign saving (the current account deficit)
DEP	=	the dependency ratio, and
URB	=	the urbanization rate.

The signs below the variables indicate the expected a priori signs according to the earlier discussion.

Three dimensions of income were included as determinants of the rate of household saving in equation (8-7): the log of trend per capita private disposable income; its growth rate; and the log deviation of current from trend private disposable income. Note that trend income plus log income deviation equals the log of current income. Thus, the proposition, implicitly assumed in some earlier studies, that the coefficients on the two components of income are the same can be tested. A fourth income variable included here is household transfers.

The domestic real rates of interest and inflation could affect decisions about intertemporal consumption and portfolio composition, but theory cannot predict the direction of the effects on household saving. Monetary wealth (which affects liquidity constraints and constitutes consumer wealth) and foreign saving should depress the rate of household saving. Finally, while the dependency ratio also reduces saving, the urbanization variable was added to control for the potential effect of differences in the measurement of urban and rural saving, as well as for other structural differences in the economies.

A linear form of the saving equation (8-7) was estimated using the panel sample and the econometric techniques summarized briefly in the second section. Tables 8–3 and 8–4 summarize the regression results, showing first the results with different methods of estimation and then some runs with certain variables excluded.

Four estimation techniques were used—ordinary least squares (OLS), instrumental variables (IV) for the interest rate term, a fixed-effects country dummy, and random effects. A priori it was expected that fixed effects with IV for the interest rate would be best, and the results in table 8–1 bore that out.

For the IV estimation, the London interbank borrowing rate (LIBOR) corrected by international inflation was used as the instrument for the domestic real rate of interest.[30] Line 4 in table 8–3—the fixed-effects estimations with instrumentalization of the real interest rate—thus constitutes the preferred result. Table 8–4 presents a set of fixed-effects results obtained from omitting some variables.

Each of the income variables has a strong positive effect on household saving rates, which accords with most of the previous studies for developing countries. The growth rate of trend per capita disposable income (GITP) has a strong effect on the rate of household saving in developing countries: a 1 percentage point increase in per capita income growth raises the household saving rate by at least 0.5 percentage points in the sample of developing countries used here. Faster growth of per capita income over the medium term is the best way to raise the rate of private saving, a point that suggests the presence of a virtuous cycle between growth and saving.

Table 8–3. Determinants of Household Saving: Different Estimation Methods

(dependent variable: household sector saving as a percentage of household disposable income)

	Trend income (log)	Income growth rate (5-year average)	Income deviation from trend (log)	Transfers to household (ratio to income)	Real interest rate	Inflation rate	Beginning of period money and quasi-money (ratio to income)	Foreign savings (ratio to income)	Dependency ratio	Urban population ratio	R^2_{adj}
1. OLS	0.03	0.75	0.12	-0.32	-0.10	-0.06	-0.03	-0.32	-0.48	-0.001	0.646
	(1.4)	(6.2)	(0.8)	(-1.7)	(-0.8)	(-0.6)	(-1.0)	(-4.3)	(-3.2)	(-2.1)	
2. Fixed effect[a]	0.26	0.54	0.30	-0.40	-0.08	-0.14	-0.19	-0.14	0.83	0.0001	0.811
	(5.4)	(4.2)	(2.5)	(2.1)	(-0.7)	(-1.5)	(-3.1)	(-2.8)	(2.5)	(0.1)	
3. Random effect[b]	-0.04	0.70	0.19	-0.38	-0.13	-0.13	-0.06	-0.18	-0.54	-0.001	0.703
	(1.6)	(5.8)	(1.3)	(-1.9)	(-1.1)	(-1.2)	(-1.7)	(-3.4)	(-3.1)	(-1.6)	
4. Fixed effect IV	0.25	0.51	0.27	-0.42	-0.19	-0.23	-0.18	-0.12	0.75	0.0004	0.809
	(4.6)	(3.5)	(2.0)	(-2.1)	(-0.7)	(-1.0)	(-3.0)	(-2.2)	(2.0)	(0.2)	

Note: The t-statistics are in parentheses.

a. Breusch-Pagan test for the absence of individual effects in the errors: = 15.99 (P-value = .00006).

b. Hausman specification test, comparing random effect and fixed effect: = 28.4 (P-value = .002).

Source: Schmidt-Hebbel, Webb and Corsetti (1992).

Table 8–4. Determinants of Household Saving

(dependent variable: household sector saving as a percentage of household disposable income [a])

	Trend income (log)	Income growth rate (5-year average)	Income deviation from trend (log)	Transfers to household (ratio to income)	Real interest rate	Inflation rate	Beginning of period money and quasi-money (ratio to income)	Foreign savings (ratio to income)	Dependency ratio	Urban population ratio	R^2_{adj}
5. Inflation rate	0.22	0.56	0.26	-0.19	-0.15	—	-0.16	-0.14	-0.56	-0.0004	0.765
	(3.11)	(3.88)	(1.77)	(-0.73)	(-0.54)		(-2.26)	(-2.70)	(1.00)	(-0.22)	
6. Real income	0.26	0.56	0.31	-0.38	—	-0.08	-0.18	-0.14	0.87	-0.0001	0.812
	(5.67)	(4.43)	(2.78)	(-2.00)		(-1.88)	(-3.21)	(-3.05)	(2.68)	(-0.04)	
7. Trend income	—	0.75	0.24	-0.34	-0.13	-0.15	-0.08	-0.14	-0.26	0.003	0.748
		(4.2)	(1.5)	(-1.4)	(-0.4)	(-0.6)	(-1.2)	(-2.2)	(-0.8)	(1.5)	

— Omitted variable.

Note: The t-statistics are in parentheses.

a. All estimations are with fixed-effect country dummies and instrumental variables for the real interest rate.

Source: Schmidt-Hebbel, Webb and Corsetti (1992).

The deviation of income from its trend level, the proxy for the business cycle, has a positive influence on the saving rate. Its coefficient is approximately 0.30, however, which is significantly lower than the 1.0 coefficient predicted by the permanent income theory. The implication is that households will save about one-third of each additional percentage point of current (transitory) income over its trend level. This important effect of current income on consumption probably signals the combined effect of borrowing constraints faced by households and their use of current income in reestimating their permanent income levels.

The (log of the) level of per capita trend disposable income also plays a significant role in increasing saving, as reported in tables 8–3 and 8–4. Saving is a superior good, over the range of income levels in the present sample, so that it increases by a higher percentage rate than that of (trend) household income. The high elasticity of the saving rate with respect to the per capita level of trend income (around 0.25) suggests that this coefficient should not be used for

wide out-of-sample extrapolations, since the rate of saving cannot rise indefinitely with income. Omitting this variable with the present sample, as in line 7 in table 8–4, significantly worsens the fit of the regression and affects the coefficients on other variables that are correlated with income levels—mainly the ratios of monetization, dependency and urbanization.

The two components of the level of income—trend and deviation from trend—have almost identical coefficients.[31] Although the effect of higher current income shows up in a higher value for trend income and a higher estimate for trend growth, temporarily raising income seems to have a relatively weak impact on saving. The reasons might be that many households are credit-constrained or that they sharply revise their estimates of permanent income in response to fluctuations in current income. The coefficient on transfers is negative, frequently significant and surprisingly large. Since transfers are already counted as part of disposable income, it indicates that households consume on average $1.40 more for one additional dollar of transfers.

The domestic real interest rate has a small, mostly negative and non-significant influence on the rate of household saving. This result, which confirms most previous studies on the role of interest rates in determining consumption or saving, implies either that the income and substitution effects cancel each other out or that liquidity constraints weaken the effects of intertemporal relative prices.

Inflation has a negative effect on saving, but the effect is not statistically significant. Since the real interest rate and the inflation rate are somewhat collinear, they were entered one at a time (table 8–4). This approach raises the significance of inflation to about the 10 percent level (equation 8–7), still with the negative sign. Omitting inflation, on the other hand, does not make the effect of the real interest rate significant. In other words, reducing inflation seems to encourage saving, but raising the rate for deposits relative to inflation has no positive effect on saving and might even discourage it.

Monetary assets play a dual role in the specification: first, they constitute a stock variable signalling (inversely) the extent of domestic liquidity constraints; and, second, they indicate the financial wealth of the households. For both reasons monetary stocks were expected to have a negative influence on saving. The results show a negative and significant coefficient for the ratio of money to income; it is around 0.18 in most equations with fixed-effect estimation.

Foreign saving acts as a constraint on external liquidity, although it might not have during the period 1976–81 when developing countries had access to foreign lending. Its role in boosting private consumption is reflected in the results obtained here. It had a negative influence on saving—statistically significant but not large.

Because of the short time series for each country and because the fixed-effect (country dummy) technique of esti-

mation does not consider cross-country variation, not much significance was attached to the coefficients on the demographic variables. The rate of urbanization has no discernible effect on saving. The dependency ratio has widely varying effects depending on the specification and estimation technique.[32] It was also highly collinear with the growth term for each country, as a result of which both coefficients were highly unstable.

Requirements for Raising Household Saving

The results lead to the conclusion that the measures of income and wealth explain most of the variation in the rates of household saving. Households save a larger share of their income when that income is higher and is growing faster. They save less when they start the period with greater liquid wealth, although wealth reduces saving much less than one-for-one. Table 8–5 calculates the changes in all significant non-demographic determinants of saving required to raise the rate of household saving by 1 percentage point, based on the fixed-effect IV regression with all variables included (line 4 in table 8–3).

To raise the rate of household saving 1 percentage point would require increasing the trend growth rate of per capita disposable income 2.0 percentage points. Because the business cycle has a relatively small influence on the rate of saving, a 3.7 percentage point increase in the ratio of current to trend disposable income is required to achieve a 1 percentage point rise in the rate of saving. A 5.6 percentage point reduction in the ratio of money to income or a 8.3 percentage point reduction in the current account deficit (foreign saving) corresponds to a 1 percentage point increase in the rate of household saving.

Table 8–5. Changes in the Determinants of Saving Required to Raise the Rate of Saving 1 Percentage Point

The regression results in table 8-3, equation 4, infer that a 1-percentage point increase in the rate of household saving in developing countries results on average from any of the following changes:

1. Percent change in the level of trend per capita disposable income	4.0
2. Percentage point change in the trend growth rate of per capita disposable income	2.0
3. Percentage point change in the ratio of current per capita disposable income to the trend level	3.7
4. Percentage point change in the ratio of household transfers to private disposable income	-2.4
5. Percentage point change in the ratio of monetary assets to private disposable income	-5.6
6. Percentage point change in the ratio of foreign saving to private disposable income	-8.3

Source: Schmidt-Hebbel, Webb and Corsetti (1992).

As many people suspected, inflation may discourage saving. The result is at best marginally significant statistically, but there are few high-inflation observations in the sample. Higher real interest rates do not encourage saving in the countries in this sample; the coefficient is not statistically significant. That real interest rates have no effect on saving is especially striking given that liquid wealth was controlled for. Households with a high level of wealth would be more likely to reduce their rate of saving in response to increased rates of interest because the wealth effect would more likely predominate.

Policy Implications

The rate of saving has risen substantially in many developing countries, and fallen substantially in others, particularly in Sub-Saharan Africa since the mid-1970s and in the highly indebted countries since the early 1980s. To raise investment to levels necessary for desirable rates of growth, these country groups have to increase their rates of saving substantially. In the absence of large flows of foreign lending, the required increase in saving will have to come mostly from domestic efforts.

Public policies can affect national saving in two ways: fiscal policies can change the level of saving by the public sector; and, more indirectly, policy changes can affect the variables to which private saving is sensitive. The following discussion identifies the implications for the effectiveness of public policies in raising national saving in developing countries that can be drawn from the empirical literature reviewed earlier and from the results of this study as described in the preceding two sections.

Stabilization Policies

Fiscal reform aimed at reducing unsustainable public sector deficits is normally at the heart of effective stabilization programs. Raising public saving is the most direct and powerful way the public sector can contribute to higher national saving, because the private sector will not offset one-for-one the increase in public saving. This policy implication rests on the empirical rejection of the Ricardian equivalence hypothesis in most studies for both industrialized and developing countries and on the results obtained here. For the sample of developing countries, a $1 increase in public saving is only partially offset by declines in private saving that range between $0.16 and $0.50, depending on how the reduction in public saving is achieved (via higher taxes or lower current expenditures) and how permanent the private sector perceives the change to be.

Fiscal stabilization has additional, indirect effects on national saving that stem from the lower requirements for domestic financing of the budget deficits, the short-run recessionary impact of stabilization, and the longer term stability of the macroeconomic and financial environment.

Reduced domestic budgetary financing requirements contribute to lower real interest rates or lower inflation, or both. Most of the empirical literature shows that real interest rates have no significant effect on private saving—because either the substitution, income and wealth effects of changed interest rates cancel each other out or the constraints on liquidity are pervasive, so that the incidence of changing incentives for the intertemporal allocation of consumption is reduced.

Inflation is equivalent to a tax levied on the holders of base money. As with any other tax on a particular financial asset, inflation causes a shift in the composition of private portfolios without necessarily affecting how fast the portfolios grow over time through saving. The results obtained here confirm the latter point—inflation has no significant, systematic effect on levels of consumption or saving.

Temporary declines in income, often associated with stabilization programs, normally depress saving more than proportionally. This procyclical behavior of saving is far less intense, however, than what the permanent income hypothesis predicts. As a result, the intertemporal smoothing of consumption is far from perfect: liquidity constraints and uncertainty over future income streams seem to account for the significant variations of consumption in response to temporary fluctuations of income.

Finally, macroeconomic stabilization reduces the variability of relative prices and the uncertainty about future policies and key macro variables. While reduced uncertainty tends to boost investment, it has no clear effect on private saving other than diminishing flight into consumer durables and foreign capital, an outcome that tends to increase measured private saving in developing countries suffering from high instability during the pre-stabilization phase.

Financial Liberalization

Interest rate controls and credit rationing are common in many countries. As a result, real interest rates are very low or negative, and loanable funds are in short supply. Financial reforms often raise real interest rates and contribute to financial deepening. While higher real interest rates improve the efficiency with which resources are used, they do not have a significant effect on private saving, as discussed above. Financial deepening resulting from deregulation of the financial sector leads to higher holdings of quasi-monetary and financial assets, which probably results more from reallocation within portfolios than from growth of total portfolios. Greater holdings of monetary and financial assets could reduce the constraints on domestic borrowing, however, and hence lower private saving. The evidence in the present studies has mixed implications about the effects of these stocks of assets: while these stocks appear to affect some of the consumption functions for the first sample of countries negatively, some of the saving regressions for the second

sample also show a negative role for holdings of monetary assets. The first sample includes many high inflation countries, with very variable real money balances. Further investigation is needed before a conclusion about the effects of financial deepening on rates of saving can be reached.

Inflows of Foreign Capital and Adjustment Lending

Inflows of foreign capital tend to reduce private saving, i.e., a fraction of each additional dollar of foreign borrowing finances private investment. The findings obtained here confirm this result, which was also observed by most of the earlier literature: in the first sample, consumption is increased by some \$0.40 and in the second by only some \$0.14 for each dollar of foreign lending.

It is important, however, not to jump to the conclusion from this evidence that foreign loans, and adjustment lending in particular, usually worsen the economic performance of developing countries. The relevant questions are whether effective public policies supported by adjustment lending can raise aggregate saving—even if private or household saving declines in the short run—and whether those policies can increase private saving in the long run. Positive answers to these questions hinge on two things: adjustment lending must contribute to increases in public saving by more than the decline in private saving; and it must contribute to future higher growth, which will have a significant impact on private saving, as discussed next.

Structural Adjustment and Growth Policies

Most empirical studies show that per capita income and/or the rate of income growth have significant, high and positive effects on private saving. The results obtained here for household saving confirm these findings, showing that both the level of per capita trend income and its rate of growth increase household saving over the relevant low- to middle-income range of the sample. It implies that higher growth will feed back into higher private and national saving and allow for even higher growth. Hence, successful structural reforms need to move countries beyond the initial conditions of low mobilization of resources and income growth and into a virtuous cycle of mutually reinforcing saving and growth efforts, as has happened in successful East Asian countries.

Appendix

Data Sources and Transformations for Private Consumption Functions

This section discusses the definitions of the variables, the data sources and the data transformations corresponding to the variables in equation (8-2).

Original variables. The following original variables were obtained from the World Bank ANDREX data base (which compiles data from the United Nations National Accounts, the International Monetary Fund's [IMF] International Financial Statistics [IFS] [various issues, b] and national sources): total consumption; money and quasi-money; private consumption; and GDP and GNP. All variables are measured at current prices in local currency units.

The following original variables were obtained from the World Bank SAVEM database (which compiles data from the United Nations National Accounts, among other sources): local currency investment; GNS; and GDP. All variables are measured at current prices in local currency units.

The source of the nominal interest rate is the IMF IFS data bank.

The sources for the operational non-financial public sector deficit (percent of GDP at current prices) for Latin American countries are: Argentina—Kiguel and Liviatan (1989) and United Nations Economic Commission for Latin America and the Caribbean (ECLAC) Project on Fiscal Policies, Santiago, Chile; and Brazil, Chile, Colombia, Costa Rica, Mexico, Peru and Venezuela—ECLAC Project on Fiscal Policies.

The sources for non-financial public sector investment (percent of GDP at current prices) for Latin American countries are: Argentina, Brazil, Chile, Costa Rica and Venezuela—ECLAC Project on Fiscal Policies; Colombia—internal World Bank data; Mexico—proportion of public investment in GDI at constant prices, from Banco de Mexico (1989) applied to the GDI/GDP share at current prices from the World Bank's ANDREX database; and Peru—proportion of public investment in GDI at constant prices from the International Development Bank (IDB) (1989, table IX-2, p. 203) applied to the GDI/GDP share at current prices from the World Bank's ANDREX database.

Additional country-specific variables for the five non-Latin American countries were obtained from the following sources: Ghana—non-financial public sector deficit and share of public investment in GDI from Islam and Wetzel (1990); Pakistan—public sector figures from Pakistan Economic Survey; the Philippines—public sector figures from Easterly (1989) (figures were not available for 1980, and it was assumed they were the proportion of GDP that pertained in 1981); Thailand—public sector figures from Easterly and Honohan (1990) (figures were not available for 1980, and it was assumed they were the proportion of GDP that pertained in 1981); and Zimbabwe—figures for the public sector from Schmidt-Hebbel (1990).

Transformed variables. These include current period variables, permanent disposable income, permanent public saving, and inflation and interest rates.

• *Current period variables.* Public saving in current prices was obtained by subtracting the operational non-

financial public sector deficit from non-financial public sector investment. To obtain private saving, either foreign saving and public saving was subtracted from GDI or public saving was deducted from GNS. Private disposable income is the sum of private saving and private consumption.

• *Permanent disposable income.* For the estimate of permanent private disposable income at current prices (which is divided by current period private disposable income at current prices in equation 8-3), the first step was to obtain real private disposable income by dividing private disposable income in current prices (DY_p) by the GNP deflator. In the cases of Brazil, Colombia, Pakistan, Thailand and Venezuela, the next step was to calculate permanent private disposable income in constant prices (real PDY_p), accomplished by estimating the 1980–87 deterministic trend. In the cases of Argentina, Chile, Costa Rica, Ghana, Mexico, Peru, the Philippines and Zimbabwe, the trend was not significant, and real PDY_p was therefore defined as the sample arithmetic average of the real DY_p series. Finally, permanent private disposable income (PDY_p) in current prices was obtained by multiplying real PDY_p by the GNP deflator.

• *Permanent public saving.* Two extreme alternatives for permanent public saving in current prices (which is divided by current-period private disposable income in current prices in equation 8-3) were used for the estimations. The first one is a partial forward-looking option that specifies expected long-term public saving as an arithmetic average of actual current and future public saving levels two periods into the future. The second option corresponds to static expectations.

• *Inflation and interest rates.* The rate of inflation corresponding to the private consumption deflator was normalized as follows:

(8-8) $INF = (\Delta P_{ct}/P_{ct-1})/(1 + \Delta P_{ct}/P_{ct-1})$

where P_c is the private consumption deflator and Δ is the first-difference operator.

The real interest rate (r) was measured ex-post using the standard Fisher equation:

(8-9) $r = (1 + i)/(1 + \Delta P_{ct}/P_{ct-1}) - 1$

where i is the nominal interest rate.

Data Sources for Household Saving Functions

The United Nations National Accounts break income and consumption series into general government and corporate and household sectors, from which household disposable income, household saving and transfers from the general government to households were calculated.[33] Interest rates came from a data set developed by the Financial Policy Division of the World Bank. The remaining data—inflation, share of the urban population, dependency ratio, current account balance and money balances—came from the IMF *IFS* (various issues, b) and *Government Finance Statistics* (*GFS*) (various issues, a) and the World Bank's Economic and Social Database.

Household disposable income includes all current receipts by households less taxes and social security contributions. The key question is whether the exclusion of the retained earnings of (private) corporations owned by households distorts the picture of household decision-making. The household sector already includes all agricultural firms and firms in informal non-agriculture. Excluding the income of private corporations does not affect the results as long as most of the variation in household income and saving involves households that would not count the corporate income and saving as part of their own budget and would not make household saving decisions to offset what was going on in the corporate sector.

To calculate the three income variables actually used in the analysis, regressions were run with five-year overlapping series up to and including the current year, regressing the log of household disposable income on time. The estimated value for the current year gives the trend value of current income; the coefficient on time is the trend rate of growth; and the deviation from the estimated value in the current year is the temporary component of income.[34]

To test whether saving out of transfers to households was different from that out of other income, it was included on the right-hand side. Transfers included social security, unemployment relief and transfers from abroad; they did not include indirect transfers such as farm price supports or subsidies that permitted food to be sold at below-market prices. Since transfers are already counted as part of total income, the coefficient on transfers would be zero if consumption out of that income were the same as other income. A significant negative coefficient would indicate that saving out of transfer income was on average less than that out of other income.

The interest rate is the rate on three-month time deposits. The inflation rate is the change in the log of the household consumption deflator, going from the year average for the previous year to the year average for the year subsequent to the observation. The real interest rate is the difference between the two.

As a measure of holdings of monetary assets, money plus quasi-money at the end of the previous period was used as a measure of the liquid wealth available for consumption in the current period. To get its real value relative to income, it was divided by the geometric average of nominal disposable income in the current and previous years.

Foreign saving is the current account balance, again as a share of household disposable income. There are two reasons for believing that foreign saving is exogenous with

respect to household saving. First, developing countries were credit-constrained during the bulk of the period; most of the countries in the sample were borrowers throughout the period, and during the subperiod of freer access to foreign lending (1976-81), many developing country governments restricted the access of the private sector to foreign capital. Second, any endogenous response of capital inflows to domestic investment would most likely be in the public and corporate sectors, not the household sector.

The two demographic variables in the regression are the rates of dependency and urbanization. The variables change little for each country over the observation periods and in many cases are not actually known on an annual basis. They are entered mainly as control variables, and not too much importance should be attached to the coefficient estimates. The dependency ratio is the population below 15 years and above 65 years as a percent of total population. The rate of urbanization is the share of the population in cities, based on United Nations data; the cut-off for city size varies from country to country.

Notes

1. GDS is defined as the difference between GDP and total consumption, or the difference between gross domestic investment (GDI) and the trade surplus. The difference between (GNS) and GDS, or between GNP or GDP, is the sum of net current transfers and factor payments to the rest of the world. Hence, GNS is the difference between GDI and foreign saving (the current account deficit). All variables are measured in current prices in domestic currencies. An increase in factor payments to the rest of the world in relative terms reduces national saving more than GNP. The results are a shrinking of the ratio of GNS to GDP and an increase in the wedge between the latter and the ratio of GDS to GDP.

In figures 8-1 and 8-2, the rates of saving are unweighted arithmetic sample averages. Unweighted averages make sense if the relevant unit of analysis is the country, the case in most empirical cross-country studies, including that described in this chapter. Weighted averages are preferable when drawing implications for the entire sample under study, using, for instance, the share of each country's GDP (or GNP) in the corresponding indicator for the entire sample.

2. Collins (1989) discussed data on the private sector or households for some countries but did not use them in the regressions for lack of comparability.

3. Rossi's data are somewhat flawed in that private income included the profits of public as well as private enterprises. Thus, implicit saving included saving by public sector enterprises.

4. Several older studies—Singh (1972) and Williamson (1968)—also used data on private saving from the 1950s and 1970s, but their theories were traditional Keynesian, which overlooked many of the issues currently of interest.

5. Rossi (1988) had first differences of consumption on the left side and current income minus past consumption on the right so that the absolute level of income did not enter explicitly; rather, it was implicitly assumed not to matter in each regression. This approach made sense because he grouped his countries by region so as to control for level of income, and he put in country dum-

mies. Singh (1972) used the inverses of the square root and the fourth root of the per capita level of income to test hypotheses about average and marginal propensities to save.

6. There might be some simultaneity bias—high rates of saving and of growth reflect the effect of good investment opportunities, which are not fully reflected in the real rates of interest for deposits. Further, with the public sector defined to include aggregate saving, revenues would be expected to adjust more automatically to increases in income than to current expenditures. In addition, government investment (which counts as saving) might be driving both faster growth and higher aggregate saving.

7. However, not all holdings of monetary assets have a corresponding counterpart in current and permanent flows of income; the returns on holdings of base money, for instance, are excluded from private disposable income.

8. For Ricardian equivalence to hold, the main conditions that have to be satisfied jointly are: absence of liquidity constraints; equal rates of discount for the public and private sectors; and certainty of the flows of future income, taxes and public sector expenditures. For a further discussion of these conditions and for surveys of the empirical studies, see Hayashi (1985), Hubbard and Judd (1986), Bernheim (1987), and Leiderman and Blejer (1988).

9. Montiel and Haque also tested for differences between public and private discount rates and did not find that they explained the deviation from Ricardian equivalence.

10. Giovannini (1985) implicitly recognized this point in noting that much of the increase in Korean saving in the late 1960s resulted from the increase in government saving.

11. Both greater purchases of durables and capital flight tend to reduce measured private saving, as measured by the official national accounts, without affecting true private saving, defined as the total accumulation of private wealth.

12. For a comprehensive treatment of the effects of different sources of uncertainty on saving, see Gersovitz (1988).

13. A recent error-correction model for U.S. private consumption can be found in Bovenberg and Evans (1990).

14. First, the use of appropriate exchange rates is required for cross-country comparability and estimation. Second, in the case of data and estimations on saving, there is no adequate deflator for obtaining series for saving in constant prices. These two problems are avoided by specifying ratios instead of levels.

15. Private consumption is normally measured accurately (see Bovenberg and Evans 1990). This assertion should be qualified, however, in the case of underground production leaving the country as unrecorded capital flight (via the underinvoicing of net exports or outright smuggling), which tends to finance consumption abroad by holders of flight capital.

16. For a review of the measurement problems with national saving and its components in an international context, see Aghevli, et al. (1990), and for a discussion of the issues related to the measurement of saving in the United States, see Bovenberg and Evans (1990).

17. In a country with a ratio of domestic public debt to GDP of 0.5 and an annual rate of inflation of 30 percent, the inflation component of nominal interest payments is close to 15 percent per year, the implication being a corresponding underestimation of public saving and overestimation of private saving.

18. See Judge, et al. (1988) for a detailed discussion of pooled cross-section time-series estimators.

19. Because fitted values for a right-hand variable were used, the t-statistics obtained from the regression were corrected by using the variance-covariance matrix of the actual (and not fitted)

Fry, M. J. 1978. "Money and Capital or Financial Deepening in Economic Development?" *Journal of Money, Credit, and Banking* 10 (November):464–75.

———. 1980. "Saving, Investment, Growth and the Cost of Financial Repression." *World Development* 8:317–27.

———. 1988. *Money, Interest and Banking in Economic Development*. Baltimore, Md.: Johns Hopkins University Press.

Gersovitz, M. 1988. "Saving and Development." In Hollis Chenery and T. N. Srinivasan (eds.), *Handbook of Development Economics*. New York: North Holland.

Giovannini, A. 1983. "The Interest Elasticity of Savings in Developing Countries: The Existing Evidence." *World Development* 11 (7):601–07.

———. 1985. "Saving and the Real Interest Rate in LDCs." *Journal of Development Economics* 18 (August).

Gupta, K. L. 1987. "Aggregate Savings, Financial Intermediation, and Interest Rate." *Review of Economic and Statistics* 69:303–11.

Hammer, J. 1986. "Population Growth and Savings in LDCs: A Survey Article." *World Development* 14 (May):579–93.

———. 1987. "The Demographic Transition and Aggregate Savings in Less Developed Countries." *Journal of Economic Development* 12 (2): 21–37.

Hayashi, F. 1985. "Tests for Liquidity Constraints: A Critical Survey." NBER Working Paper 1720. Cambridge, Mass. October.

Hsiao, C. 1986. *Analysis of Panel Data*. Cambridge: Cambridge University Press.

Hubbard, R. G., and K. L. Judd. 1986. "Liquidity Constraints, Fiscal Policy, and Consumption." *Brookings Papers on Economic Activity* 1.

International Development Bank (IDB). 1989. *Economic and Social Progress in Latin America*. Washington, D.C.: IDB.

International Monetary Fund. Various issues, a. *Government Financial Statistics*. Washington, D.C.: International Monetary Fund.

———. Various issues, b. *International Financial Statistics*. Washington, D.C.: International Monetary Fund.

Islam, R., and D. Wetzel. 1990. "Macroeconomics of Public Sector Deficits: The Case of Ghana." Manuscript. World Bank. Washington D.C.

Judge, G. G., et al. 1988. *Introduction to the Theory and Practice of Econometrics*. New York: John Wiley.

Kiguel, M., and N. Liviatan. 1989. "The Old and the New in Heterodox Stabilization Plans: Lessons from the 1960s and 1980s." Policy, Planning and Research (PPR) Working Paper no. 323. World Bank. Washington, D.C. December.

Kmenta, J. 1986. *Elements of Econometrics*. New York: MacMillan.

Lahiri, A. K. 1988. "Dynamics of Asian Savings: The Role of Growth and Age Structure." IMF Working Paper no. 88/49. Washington, D.C.

Leff, N. H. 1969. "Dependency Rates and Savings Rates." *American Economic Review* 59 (December):886–96.

Leiderman, L., and M. Blejer. 1988. "Modeling and Testing Ricardian Equivalence: A Survey." *IMF Staff Papers* 35 (1)(March).

Mason, A. 1986. "National Saving Rates and Population Growth: A New Model and New Evidence." In D. G. Johnson and R.

Lee (eds.), *Population Growth and Economic Development: Issues and Evidence*. Madison, Wisc.: University of Wisconsin Press.

———. 1988. "Saving, Economic Growth and Demographic Change." *Population and Development Review* 14 (1).

McKinnon, R. I. 1973. *Money and Capital in Economic Development*. Washington, D.C.: Brookings Institution.

Mikesell, R. F., and J. E. Zinser. 1973. "The Nature of the Savings Function in Developing Countries: A Survey of the Theoretical and Empirical Literature." *Journal of Economic Literature* 11:1–26.

Montiel, P., and N. U. Haque. 1987. "Ricardian Equivalence, Liquidity Constraints, and the Yaari-Blanchard Effect: Tests for Developing Countries." IMF Working Paper. Washington, D.C.

Rossi, N. 1988. "Government Spending, the Real Interest Rate, and the Behavior of Liquidity-Constrained Consumers in Developing Countries." *IMF Staff Papers* 35 (1)(March).

———. 1989. "Dependency Rates and Private Savings Behavior in Developing Countries." *IMF Staff Papers* 36.

Rostow, W. 1960. *The Process of Economic Growth*. Oxford: Clarendon Press.

Schmidt-Hebbel, K. 1987. "Foreign Shocks and Macroeconomic Adjustment in Small Open Economies." Ph.D. dissertation. Massachusetts Institute of Technology. Cambridge, Mass.

———. 1990. "Zimbabwe: The Need for Fiscal Adjustment." Manuscript. World Bank. Washington D.C.

Schmidt-Hebbel, K., S. Webb and G. Corsetti. 1992. "Household Saving in Developing Countries: First Cross-Country Evidence." *World Bank Economic Review* (forthcoming).

Shaw, E. S. 1973. *Financial Deepening in Economic Development*. New York: Oxford University Press.

Singh, S. K. 1972. "The Determinants of Aggregate Savings." In S. K. Singh (ed.), *Development Economics: Theory and Findings*. Lexington, Mass.: D. C. Heath.

Summers, L. H. 1985. "Issues in National Savings Policy." NBER Working Paper 1710. Cambridge, Mass.

Tanzi, V., M. I. Blejer and M. O. Teijeiro. 1987. "Inflation and the Measurement of Fiscal Deficits." *IMF Staff Papers* 34 (4)(December).

Webb, S., and H. Zia. 1990. "Lower Birth Rates = Higher Saving in LDCs." *Finance and Development* (June):2–4.

Williamson, J. G. 1968. "Personal Savings in Developing Nations: An Inter-temporal Cross-Section from Asia." *Economic Record* 44 (June):194–210.

World Bank. 1988. *Adjustment Lending: An Evaluation of Ten Years of Experience*. World Bank, Policy and Research Series no. 1. Washington, D.C.: World Bank.

———. 1990. *Adjustment Lending Policies for Sustainable Growth*. Policy and Research Series no. 14. Washington, D.C.: World Bank

———. Various years. *World Development Report*. New York: Oxford University Press.

Zeldes, S. 1989. "Consumption and Liquidity Constraints: An Empirical Investigation." *Journal of Political Economy* 97: 305–46.

Comment

Mark Gersovitz

Klaus Schmidt-Hebbel and Steven Webb provide a wide-ranging discussion of saving in poor countries. They present evidence on the variation in the rates of saving across countries over time and thereby highlight such issues as Africa's low and falling rates of saving. Undoubtedly this phenomenon must be associated with the perplexing problem of that continent's poor record of growth, so that we are quickly confronted with issues that need analysis. The authors follow this overview of national rates of saving with a review of the findings of studies that have investigated the variation in those rates. Finally, they present results from two of their own studies of saving behavior.

Their basic conclusion is plausible: the most direct and sure way to increase national saving is to raise public saving, because private saving does not fall sufficiently to offset significantly the increase in public saving. The authors are able to investigate this issue because they have data on both public and private saving. The results illustrate the benefit of their emphasis on a disaggregation of rates of saving.

This chapter, although extensive, is not exhaustive: a thorough analysis of saving would be an exceedingly vast undertaking. Therefore my remaining comments indicate some of the directions for further inquiry that are suggested by this chapter.

Analysis of saving is complicated by the simple fact that saving is a sacrifice of current consumption that is usually thought to be motivated by the expectation of a consequent gain in future consumption. Decisions on saving are therefore inherently intertemporal and involve expectations about future events. The authors pay attention to these issues, following the traditional distinction between permanent and transitory variables. For instance, they decompose the actual series on income into permanent and transitory components. An area for further work would be to give more attention to this decomposition because the authors use relatively simple schemes.

Furthermore, they carry out the decompositions on such variables as income that may be subject to problems of measurement and endogeneity. It would be useful to investigate some of the underlying variables that cause income to change either permanently or temporarily, variables such as agro-climatic conditions, international commodity prices and even the national incomes of the rich countries. These variables are less likely to be endogenous and are less ambiguously measured, and their own decompositions into permanent and temporary components may be easier to interpret.

Such decompositions may also be useful themselves in providing information on the nature of shocks so that policymakers can be ready to respond in offsetting ways.

The authors explain some of their results by reference to a supposed inability of individuals to borrow in these countries. For instance, that constraint would help rationalize the finding that private saving does not fall sufficiently to offset fully an increase in public saving, or that consumers respond to transitory income as well as permanent income, or that they do not respond to the rate of interest. However, we really do not have direct evidence on the prevalence of these liquidity constraints. What is needed are implications of credit constraints that are more directly testable at the aggregate level. Furthermore, an inability to borrow can raise saving rather than lower it, if individuals have to save up for discrete purchases that they would otherwise buy on credit. Finally, if individuals are liquidity-constrained and want to save little or nothing, it is not at all clear that it is a good idea to force them to increase their saving by, for instance, increasing public saving. Here, of course, is an example of a very general issue: higher levels of saving do not necessarily imply an augmentation in the well-being of the individuals in the economy because that increase comes at the cost of current consumption. After all, saving is not a goal in itself.

A related set of issues concerns the rate of return that savers are supposed to get. The rate-of-return variable that these authors use is an interest rate reported by the IMF, a rate from the formal financial markets in each country. However, those rates may correspond poorly or not at all to the rates of return most savers in the economy face. In addition, the interactions between public activity and private saving through the rate of return may be more complicated than the authors suggest. For instance, public expenditures on infrastructure may complement private investment rather than substitute for it and thereby raise the rate of return on private saving and potentially increase the level of private saving. This scenario could provide one channel whereby increased public saving does not lead to a fully offsetting fall in private saving—private saving is crowded in rather than out.

The authors place considerable emphasis on the decomposition of saving: national versus domestic and public versus private. This approach brings to mind another distinction on which little information exists in poor countries—that between corporate and personal saving. Policies that increase corporate saving may be offset by opposite movements in personal saving if individuals regard the increased corporate saving as a substitute for their own saving.

9

Endogenous Growth in Developing Countries with Government-Induced Distortions

William R. Easterly

Introduction

Economists that work on developing countries have long argued that the large differentials in growth among these countries can be explained at least partly by differences in policies.[1] Policies that directly distort relative prices and the allocation of resources—such as tariffs and import quotas, controls on prices and interest rates, and taxes—have in particular been singled out to explain the varying performance of developing countries (Krueger 1978; and Chenery, Robinson and Syrquin 1986). Much empirical evidence has accumulated that growth is significantly related to such policies, especially distortionary trade policies.[2] However, in the standard neoclassical growth model of Solow (1956), distortionary policies affect the level of income and not its rate of growth. Assuming the existence of non-reproducible factors, constant returns to scale and diminishing returns to each factor of production, sustained growth will only occur if there is exogenous technological progress. The long-run growth effects of distortionary policies have accordingly been questioned (for example, Lucas 1988). It follows that distortionary policies are not that important in explaining large differences in income levels (Rodrik 1988).

The standard neoclassical theory leaves unexplained the very large differentials in growth across regions, as shown in table 9-1. As is well-known, per capita growth in East Asia has been higher by far than that in other countries over the last two and a half decades, while growth in Sub-Saharan Africa has lagged badly. A significant set of the poorest developing countries have failed to grow at all. Countries in the Organization for Economic Co-operation and Development (OECD) have outperformed all developing country regions except East Asia and the Middle East. This pattern seems contrary to the prediction of the Solow model that income levels across countries will converge over time.[3]

The Endogenous Growth Literature

The endogenous growth literature, following on the work of Romer (1986, 1987, 1988 and 1989a), Lucas (1988) and Barro (1989a and 1991), has presented models in which policies can have significant effects on long-run growth. These models variously relax the assumptions of constant returns to scale (Romer 1986, 1987, 1988 and 1989a; and Lucas 1988), the dependence on non-reproducible factors (Rebelo 1991), and diminishing returns to each factor (Jones and Manuelli 1990). While much empirical testing of these models remains to be done, the empirical work in this literature has so far tended to confirm that policy has strong effects on growth (Barro 1991 and Romer 1989b).

The analysis of fiscal policy in the endogenous growth models is of particular interest to the theme of this chapter. Barro (1989) and Barro and Sala-i-Martin (1990) have discussed how tax rates can distort decisions on saving and reduce growth, while government services financed by those taxes can potentially raise private productivity and increase growth. Rebelo (1991) and King and Rebelo (1990) have similarly shown how differences in tax rates can translate into large differences in growth rates.

Distortionary Policies in Developing Countries

While the endogenous growth models strongly support the attention paid in the development literature to policies, so far these models have not paid much attention to the special characteristics of policies in developing countries. The salient fact about these policies is that they are associated with severe distortions of static resource allocation.

Tax systems in developing countries often have a very narrow base because of widespread tax evasion and the small size of the formal sector.[4] Generation of revenue from

Table 9-1. Growth by Region

(percent)

Country grouping	Average per capita income growth, 1965-88
Low-income	3.1
China and India	4.0
Other	1.5
Middle-income	2.3
Lower	2.6
Upper	2.3
High-income	2.3
OECD	2.3
Other[a]	3.1
Low- and middle-income by region	
Sub-Saharan Africa	0.2
East Asia	5.2
South Asia	1.8
Europe, Middle East, North Africa	2.4
Latin America and Caribbean	1.9

a. Countries classified by United Nations or otherwise regarded by their authorities as developing.
Source: World Bank (1989b).

this narrow base often implies very high tax rates. In Argentina, more than 80 percent of income is said to go unreported (World Bank 1988). In Côte d'Ivoire, employment in the formal sector amounts to only 1.4 percent of the population while the average effective tax rate in the formal sector is 48 percent [Chamley and Ghanem 1990]). Repeated attempts to increase tax revenues from the formal sector have met with failure, as there is large-scale evasion of taxes. Developing countries rely heavily on taxes on international trade, particularly in Africa, where it amounts to 35 percent of revenues (World Bank 1988).

The tax systems in developing countries are also characterized by large inequalities in the treatment of different types of income. The tax system is used even more than in industrial countries to promote a multitude of economic and non-economic objectives. For example, the tax rate on manufacturing assets in Malawi is 20 percentage points higher than on non-manufacturing assets (World Bank 1988).

There are numerous other ways in addition to taxation in which governments in developing countries intervene that create large distortions in prices and the allocation of resources. Controls on foreign exchange lead to the creation of black markets in foreign exchange, where the exchange rate is a large multiple of the official one. For example, prior to the reforms in Ghana in 1983, the black market exchange rate was 44 times the official rate (Islam and Wetzel 1991). Government marketing boards pay prices to domestic producers of export commodities that are a small fraction of the international price. Controls on nominal interest rates often result in large negative real interest rates, while quantitative

rules for the allocation of credit imply large subsidies for some types of capital and heavy implicit taxes on others. For example, credit for mortgage lending in Turkey was heavily subsidized in the early 1980s, so that the borrowers paid highly negative real interest rates, while commercial credits for other types of loans carried real interest rates as high as 50 percent (World Bank 1989b). Heavy reliance on money creation in some developing countries—especially in Latin America, where inflation has at times exceeded 1,000 percent a year—generates large taxes on money balances and disproportionately penalizes activities that are intensive in the use of cash. In all of these cases, transactions continue to take place even when the distortions penalizing them are extremely severe.

In addition, however, a large informal sector has sprung up side by side with the formal economy in many developing countries in response to the distortionary government policies. de Soto (1987) has convincingly shown how government regulation led to a thriving informal sector in Peru. Over half of urban employment in Africa is said to be in the informal sector (World Bank 1989a). The illegal economy in Ghana in 1982 was estimated to have been about 32 percent of GDP (Islam and Wetzel 1991). The informal sector often seems to provide a cushion to soften the impact of even the most extreme government policies. For example, the depredations of the Amin government in Uganda caused output by the formal sector to fall by 2 percent a year, but the traditional sector continued to grow at 3 percent a year (Reynolds 1985).

A particularly interesting case of severely distortionary government policy is that of the (formerly) centrally planned economies of China, the Soviet Union and Eastern Europe. As shown in Easterly (1991), their growth does not compare badly with the rest of the world, although their rates of investment are much higher.[5] This evidence suggests that the effects of even severe distortions can be offset by sufficiently high rates of saving.

A Model of Endogenous Growth with Distortionary Policies

This section presents an endogenous model of growth that attempts to capture some of the special features of distortionary government policy in developing countries. It postulates a model of constant returns to scale in reproducible capital, as in Rebelo (1991). Capital is broadly defined as both physical and human. Two generic types of capital are considered to produce the single output; the types are variously interpreted as imported and domestic capital and formal and informal sector capital. The distortion is defined as any government policy that causes the marginal products of the two types of capital to diverge from static competitive equilibrium. The relationship between this rate of distortion

and growth is then discussed, taking into account both fixed rates of saving and optimal saving behavior. While the government plays no productive role in this section, productive government spending is considered in the following section. Throughout the chapter, it is assumed that the economy is insulated from the international financial markets, although trade in goods is considered.

While the model is highly stylized, the results seem to give insight into some of the characteristics of developing countries discussed above.[6]

Production

Equation (9-1) shows the production function for the analysis:

$$(9\text{-}1) \quad Y = (\gamma_1 K_1^\rho + \gamma_2 K_2^\rho)^{\frac{1}{\rho}}$$

where

Y = output
K_1 = type 1 capital
K_2 = type 2 capital.

Output Y is a CES function of the two generic types of capital, K_1 and K_2, with the elasticity of substitution $1/(\rho - 1)$. Since no fixed inputs enter the production function, sustained growth is feasible through the accumulation of physical and human capital. For simplicity's sake, the population is assumed to be fixed throughout the analysis. This type of production function can be justified as being an asymptotic approximation of one in which fixed inputs become less important at high levels of income (Jones and Manuelli 1990 and Easterly 1990). Others have argued that spillovers from the accumulation of physical and human capital produce a linear relation between output and capital (Romer 1987). Finally, Rebelo (1991) has shown that all that is necessary for sustained growth is a core of capital goods that can be produced without fixed inputs, as in equation (9-1).

The distortion, measured at exponential rate τ, is defined as a unit cost associated with investment in type 1 capital goods. Two alternative real-world interpretations of the capital types and distortions are illuminating (although analytically equivalent). First, it is assumed that the economy produces a single domestic good, with capital made up of imported goods (K_1) and the domestic good itself (K_2). Both goods are assumed to be traded, and the economy is assumed to be small in international trade. The price ratio of the two goods is thus fixed and can be normalized at unity. The distortion rate τ is either a tariff on the imported capital good or an import quota (defined as the equivalent tariff rate). The proceeds of the tariff are assumed to be rebated to the private sector in lump-sum form, while the holders of import licenses receive rents under the quota system.

The other interpretation is that two types of capital are formed out of the single domestic output in an autarkic economy. The first type, called formal sector capital, is subject to a sales tax at the moment of purchase for investment. The second type is informal sector capital, which evades the sales tax. The two types of capital can both be formed from domestic output at zero installation cost. However, they differ in other characteristics such as location or institutional form of ownership. These characteristics cause them to enter into production differently and also determine whether they can be hidden successfully from the tax authorities.

Although the analysis is presented in the form of a sales or import tax on type 1 capital (the most common types of taxation in developing countries), it can be shown that in a steady state a tax on the income from type 1 capital is equivalent.[7] Thus, the analysis would be the same for a proportional income tax (on both labor earnings from human capital and profits from physical capital) that is widely but incompletely evaded. The tax is also equivalent to other government actions that imply either extra unit costs for investment in the formal sector—such as investment licenses or other regulatory requirements—or implicit proportional deductions from income, such as government violations of property rights. The analysis is the same if different types of capital are subject to differential rates of implicit or explicit subsidization/taxation, such as would occur with directed credit schemes or quantitative allocation of foreign exchange. Thus, this simple set-up captures many of the stylized realities of government distortions in developing economies.[8]

The essential characteristic of this set-up is not who or what is being taxed, but simply that a wedge is driven between the marginal products of the two types of capital, as follows:

$$(9\text{-}2) \quad \frac{\partial Y/\partial K_1}{\partial Y/\partial K_2} = e^\tau$$

where

Y = output
K_1 = type 1 capital
K_2 = type 2 capital.

τ is the exponential rate of the sales tax (or tariff) on investment in type 1 capital.[9]

Profit-maximizing producers will rent the two types of capital such that equation (9-2) is satisfied. The implication is the following ratio of type 2 to type 1 capital (denoted B), derived from equations (9-1) and (9-2):

$$(9\text{-}3) \quad B = \frac{K_2}{K_1} = \left[\frac{\gamma_2}{\gamma_1}\right]^{\frac{1}{1-\rho}} e^{\frac{\tau}{1-\rho}}$$

where

B = the ratio of type 2 capital to type 1 capital
K_2 = type 2 capital
K_1 = type 1 capital.

The distortion τ induces more of type 2 capital to be held than is socially optimal. The elasticity of substitution [$1/(\rho - 1)$] determines how strongly the ratio of capital inputs will respond to increases in the distortion.

The accumulation of the two types of capital, first under fixed rates of saving and then under optimal saving behavior, is considered next.

Capital Accumulation with Fixed Rates of Saving

With a lump-sum rebate of tax revenues, the income of the private sector is equal to total output Y. As in the original Solow model, it is assumed that a fixed proportion, s, of this income is saved. Since it is assumed the economy is closed to inflows of foreign financial capital, saving will equal investment in type 1 and type 2 capital goods:[10]

$$(9\text{-}4) \quad I_1 + I_2 = sY$$

where

I_1 = investment in type 1 capital
I_2 = investment in type 2 capital
s = saving rate
Y = output.

It is assumed that the rate of depreciation of capital (α) is the same for both types.

The growth rate for the economy in a steady state is then given by the following:

$$(9\text{-}5) \quad g = s \left[\frac{(\gamma_1 + \gamma_2 B^\rho)^{\frac{1}{\rho}}}{1 + B} \right] - \alpha$$

where

g = the growth rate for the economy
s = saving rate
B = the ratio of type 2 capital to type 1 capital
α = depreciation rate.

It can be shown that growth is unambiguously negatively related to the distortion rate τ. This point is intuitively clear, given that output for a given level of capital is maximized at zero distortion, and equation (9-5) simply represents saving out of output as a ratio to existing capital. This result is the endogenous growth analog to the standard result in the Solow model that a tax on capital will reduce the steady-state ratio of capital to labor and will lower output (see, for example, Atkinson and Stiglitz 1980).

It is more illuminating to present the relationship between the rate of distortion and growth for plausible parameter values graphically.[11] In figure 9-1, the relationship approximates a logistic curve, with flat segments at low and high rates of distortion. In this simulation, growth asymptotically approaches a minimum as the distortion τ goes to infinity. Increases in the distortion from zero are not very costly at first but show increasing costs in terms of lost growth as the distortion increases. This pattern is the dynamic analog to the well-known static principle of increasing marginal costs of distortions, which in this case reflects diminishing returns on increased use of type 2 capital.[12] The reversal of the sign of the second derivative as τ increases reflects the gradual disappearance of type 1 capital. As the use of type 1 capital approaches zero, the damage caused by additional increases in distortion becomes slight.

The finding that the growth rate is always above a certain minimum even as distortion approaches infinity is intuitively plausible in light of the country experience discussed earlier. The possibility of substituting informal capital for formal capital could explain why output and growth do not fall to catastrophic levels even with almost unlimited distortion of the allocation of resources. This possibility could also explain why centrally planned economies have been able to grow respectably—with finite losses from an arbitrarily large distortion, the negative growth effects of distortionary policies could be offset by sufficiently high increases in saving. For example, in this simulation, the loss in growth from an arbitrarily large distortion is 5 percentage points, which could be offset by an increase in saving of 20 percentage points. While this increases in saving would impose a severe cost on the population, it is within the range of feasibility.

The non-linear shape of the growth-distortion relationship also has interesting implications for policy reforms. In

Figure 9-1. Distortion and Growth, Alternative Assumptions
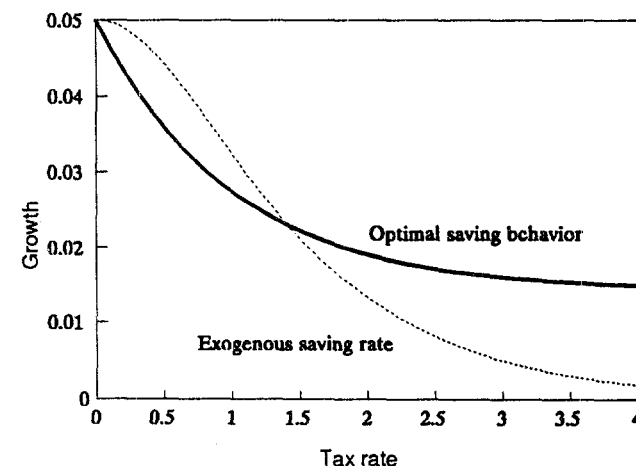
Source: Model simulation.

this model, elimination of small distortions is practically pointless, since it means just backwards movement along the initial flat part of the curve. Similarly, modest reductions of very large distortions have virtually no impact, since the tax rate of an activity that is at a very low level has little weight.

The elasticity of substitution plays a critical role in this analysis. The results just presented will only hold in the case that the elasticity of substitution is strictly greater than one, the implication being that neither input is essential for production. (The simulation just presented assumed an elasticity of 2.) Figure 9-2 shows the consequences of distortions for growth under alternative elasticities of substitution. With an elasticity equal to unity, output goes to zero as type 1 capital is more heavily penalized, since this input is essential for production. Growth declines asymptotically to the depreciation of the capital stock (-α) without replacement. With an elasticity equal to 3, on the other hand, growth stays above a minimum of over 2 percent, no matter how large the distortion.

It can be seen from figure 9-2 that the flat part of the curve at low rates of distortion with inelastic production is much larger than the flat portion with highly elastic production. The point made earlier about small distortions not being costly is stronger the more inelastic production is. Similarly, the flat part of the curve at high rates of distortion is longer (and the loss in growth smaller) the more elastic production is. Modest reform of large distortions is more ineffective the larger the elasticity of substitution is.

To summarize, in this model the reform strategy should be affected by assumptions about the substitutability of formal and informal capital. If it is believed that substitutability is high, then the focus should be on very large reductions in the large distortions, since moderate reductions will have

little effect. If it is believed that substitutability is low, there is no point in bothering with small distortions, whereas even moderate reductions in the large distortions will be effective. The benefit of reform in terms of growth is greater the more inelastic the production structure is.

Capital Accumulation with Optimal Saving Behavior

This section addresses the implications of optimal saving behavior to see how saving responds to distortion. It is assumed that identical, infinitely-lived dynasties of producers-consumers maximize the present discounted value of the utility of future consumption:

$$(9\text{-}6) \quad \int_o^\infty e^{-rt} \frac{C^{1-\sigma}}{1-\sigma} \, dt$$

where

C = consumption.

Utility is given as an isoelastic function of total consumption C where the intertemporal elasticity of substitution is $1/\sigma$.

Consumption, C, is given by the excess of income, Y, over investment spending. The investment in type 1 capital, I_1, is taxed at an exponential rate, $\exp(\tau)$, as before.[13]

$$(9\text{-}7) \quad C = Y - e^\tau I_1 - I_2 + T$$

where

C	=	consumption
Y	=	output
I_1	=	investment in type 1 capital
I_2	=	investment in type 2 capital
T	=	lump-sum transfers of revenues.

The equations for the accumulation of capital stocks K_1 and K_2 are simply:

$$(9\text{-}8) \quad \dot{K}_1 = I_1 - \alpha K_1$$

and

$$(9\text{-}9) \quad \dot{K}_2 = I_2 - \alpha K_2$$

where

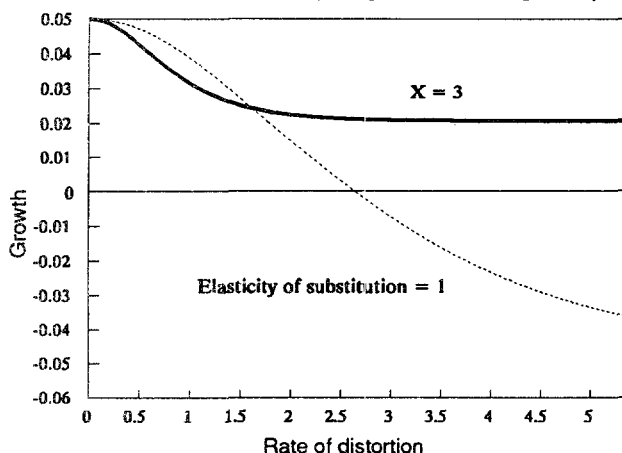|		
•	=	change
K_1	=	type 1 capital
I_1	=	investment in type 1 capital
K_2	=	type 2 capital
I_2	=	investment in type 2 capital
α	=	depreciation rate.

The condition that investment is irreversible is not imposed explicitly.

Figure 9-2. Growth and Distortion Alternative Elasticities of Substitution (Exogenous Saving Rate)

It is straightforward to show that the producer-consumer solving this maximization problem will allocate investment between the two types such that equation (9-2) continues to hold. That is, τ will be equal to the wedge between the marginal products of the two types of capital. In a steady state, both types of investment and capital, consumption and output will all grow at the same rate, which is given by:

$$(9\text{-}10) \quad g = \frac{r_2 - \alpha - r}{\sigma}$$

where

g = the growth rate of the economy
α = depreciation rate
r_2 = the marginal product of type 2 capital
r = discount rate.

r_2 is given by the following:

$$(9\text{-}11) \quad r_2 = \gamma_2 \, (\gamma_1 B^{-\rho} + \gamma_2)^{\frac{1}{\rho}-1}$$

where

B = the ratio of type 2 capital to type 1 capital (equation 9-3).

Growth is given by the familiar condition that optimal growth of consumption is equal to the difference between the net marginal product of capital and the rate of time preference times the intertemporal elasticity of substitution. Since the marginal product of type 2 capital goes down when type 1 capital is taxed more heavily, growth is unambiguously a negative function of the tax rate τ.

A plot of the growth-distortion relationship for a simulation with the same parameter values as before is shown in figure 9-1, which also shows the relationship under exogenous saving behavior.[14] As can be seen, the marginal costs of increased distortion under optimal saving behavior are no longer increasing. Even small distortions are costly, because they cause both a decrease in saving and a static loss in efficiency. However, with endogenous saving, the growth consequences of very large distortions can be less severe than under fixed rates of saving. The reason is that the rate of saving actually increases at high rates of distortion.

The causes of this outcome are examined next. It is straight-forward to show that the propensity to consume out of total capital K_1 plus K_2 is given by:

$$(9\text{-}12) \quad \frac{C}{K_1 + K_2} = (r_2 - \alpha)(1 - \frac{1}{\sigma}) + \frac{r}{\sigma} + \frac{r_2(e^\tau - 1)}{1 + B}$$

where

C = consumption
K_1 = type 1 capital

K_2 = type 2 capital
r_2 = the marginal product of type 2 capital
α = depreciation rate
r = discount rate
B = the ratio of type 2 capital to type 1 capital.

The first two terms in this expression are familiar. The first term shows that the propensity to consume out of wealth (capital) will increase with the net rate of return if the intertemporal elasticity of substitution is less than one. If this propensity is equal to one, it will be simply the second term, the rate of time preference. The third term in equation (9-12) gives the amount of the lump-sum transfer to consumers from the tax revenues as a ratio to the capital stock. These revenues are entirely consumed. As the tax rate increases, consumption declines because the rate of return falls, and the income effect is assumed to outweigh the substitution effect. The decline in consumption is partially offset by the consumption of lump-sum tax revenues, but these do not affect the rate of growth, and the lump-sum transfer disappears as the tax rate increases. The increase in saving as a share of income in response to high levels of distortion explains why distortion causes less of a fall in growth in the optimal saving case (given the assumption of the simulation of an intertemporal elasticity of less than one, as supported by most empirical evidence). As argued in Easterly (1991), higher saving in socialist countries could also be a rational response of planners to severe distortions.

If the intertemporal elasticity is greater than one, then consumption will rise with increased distortion—the substitution of present for future consumption outweighs the income effect of the higher tax rates. The decline in saving with higher levels of distortion implies a more severe decline in growth. Small distortions will be even more costly than in the inelastic endogenous saving case, and the minimum rate of growth will be less than in the case of exogenous saving. Thus, the intertemporal elasticity of substitution is as critical in this analysis as the production elasticity of substitution between the two capital types is.

Comparison of the Exogenous and Endogenous Saving Models

The exogenous and endogenous models of saving both show that distortions significantly affect growth, a finding that means that the effects of policy in endogenous growth models need not occur through the effect on saving alone. Both models also show that growth will stay above some minimum rate if the production elasticity of substitution is sufficiently high. However, the exogenous saving model implies that small distortions are not comparatively costly, while optimal saving behavior implies they can be very costly indeed.[15] It remains an empirical matter to determine which theory better fits the experience of developing countries.

165

Other implications of the optimal saving models, such as Ricardian equivalence, have not been supported by evidence in developing countries.[16] The survey of Schmidt-Hebbel and Webb (chapter 7 of this volume) found little empirical evidence of a saving response to rates of return or policy variables in developing countries. However, the data on saving in developing countries are so poor that the endogeneity of the rate of saving remains an open question.

A Model of Distortionary Taxation, Government Spending and Growth

While government played no productive role in the previous section, this section looks at the implications of productive government spending financed by the distortionary tax on type 1 capital. A stock of government capital that enters directly into the production function, meant to represent such services as roads, telecommunications, sanitation services, generation of electricity, etc., is considered.[17] The production function for the single domestic output then becomes:

$$(9\text{-}13) \quad Y = \left[(\gamma_1 K_1^\rho + \gamma_2 K_2^\rho)^{\frac{\eta}{\rho}} + \gamma_G K_G^\eta \right]^{\frac{1}{\eta}}$$

where

Y = output
K_1 = private type 1 capital
K_2 = private type 2 capital
K_G = public capital.

The two forms of private capital, K_1 and K_2, continue to have an elasticity of substitution $1/(\rho - 1)$. They are nested within a larger production function where the elasticity of substitution between private and public capital is η. As with the previous production function, this one can accommodate various interpretations. Public capital could be another use of domestic output, or it could be assumed that public capital is imported as K_1 is (but is exempt from quotas or tariffs).

The accumulation of public capital, I_G, is given by an assumption of fixed saving out of the revenues from taxing type 1 capital:

$$(9\text{-}14) \quad I_G = s_G (e^\tau - 1) I_1$$

where

I_G = public investment
S_G = government saving
I_1 = investment in private type 1 capital.

If it is assumed that the rate of depreciation is the same for government as for private capital, it immediately follows that the ratio of government capital to type 1 capital in a steady state will be:

$$(9\text{-}15) \quad \frac{K_G}{K_1} = s_G (e^\tau - 1)$$

where

K_G = government capital
K_1 = private type 1 capital
S_G = government saving.

Given that B is the ratio of type 2 to type 1 capital, which continues to be given by equation (9-3), the following ratio of output to type 1 capital, denoted λ, emerges:

$$(9\text{-}16) \quad \lambda = \frac{Y}{K_1} = \left[(\gamma_1 + \gamma_2 B^\rho)^{\frac{\eta}{\rho}} + \gamma_G (s_G (e^\tau - 1))^\eta \right]^{\frac{1}{\eta}}$$

where

λ = the ratio of output to private type 1 capital
K_1 = private type 1 capital
B = ratio of private type 2 capital to private type 1 capital
S_G = government saving.

The growth outcome for exogenous and endogenous rates of saving is considered next.

Exogenous Saving Rates

It is assumed that any taxes not spent by the government on capital accumulation are rebated to consumers. There is no lending to the public sector by the private sector. In addition, it is assumed that use of government capital is free and equally divided among consumers/producers. This assumption implies that the rents from government capital accrue to the private sector, not an unreasonable assumption for many developing countries. The accumulation of private capital is then given by:

$$(9\text{-}17) \quad I_1 + I_2 = s [Y - s_G(e^\tau - 1) I_1]$$

where

I_1 = investment in private type 1 capital
I_2 = investment in private type 2 capital
S = private saving rate
Y = output
S_G = government saving.

The steady-state rate of growth of output and capital will then be:

$$(9\text{-}18) \quad g = \frac{s\lambda - ss_G(e^\tau - 1)\, \alpha - \alpha\, (1 + B)}{1 + B + ss_G(e^\tau - 1)}$$

where

g	=	the growth rate of the economy
λ	=	the ratio of output to private type 1 capital
s_G	=	government saving
α	=	depreciation rate
B	=	the ratio of private type 2 capital to private type 1 capital.

Figure 9-3 shows a simulation of the rate of growth as a function of the tax rate for plausible parameter values.[18] There is now an upward-sloping portion of the growth-tax rate relation. As tax rates are increased from zero, the marginal product of public capital is very high, outweighing the distortionary effect of the collection of tax revenues. However, as more public capital is accumulated, diminishing returns set in, while at the same time successive increases in the tax rate worsen the effect of the distortion on the accumulation of private capital. At some point further increases in the tax rate will lower the rate of growth. From that point on, the behavior of the growth-distortion relation is similar to that in the first model. Growth holds above a certain minimum if the elasticity of substitution is sufficiently large, just as in the model without government. However, this result also requires that the elasticity of substitution between public and private capital be greater than one. In other words, none of the inputs into the production function can be essential for this result to obtain.

In this model, the effect of excessively high tax rates on growth is potentially more severe, since not only do they distort production, they could also cause movement to the down side of the Laffer curve and cause public revenue and investment to decline. The growth outcome also depends crucially on the share of public revenue, s_G, allocated to capital spending. Since s_G determines the reallocation of saving from the private to the public sector, this share can be
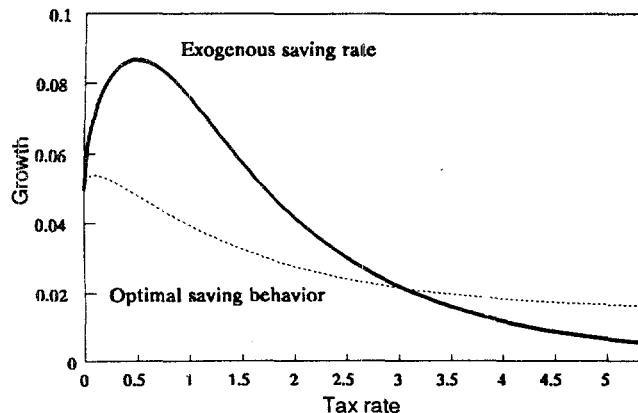
either too high or too low depending on the relative marginal products of public and private capital.

It is of interest to see the association between the rate of growth and the total amount of public revenue, as shown in figure 9-4. Once again, the overall size of government can be too large or too small. At point A in figure 9-4, the tax rate is zero. Both growth and tax revenues rise strongly as the tax rate increases, since the additional tax revenue is used to finance the acquisition of productive public capital. Growth reaches a maximum at B, at which point the positive contribution of public capital to growth just offsets the negative effect of the tax distortion. From B to C, further increases in tax rates lead to a trade-off between tax revenues and growth—they continue to boost revenue (and public capital) but at the expense of a distortion severe enough to reduce growth. At C, tax revenue as a ratio to output reaches the maximum as of the Laffer curve. From that point on, increases in the tax rate are counterproductive in terms of both revenue and growth—revenue declines because the situation is on the "wrong" side of the Laffer curve, and growth declines because of the effect of the distortion. At point D, there is convergence to a minimum rate of growth at which tax revenue and the use of both K_1 and K_G are arbitrarily close to zero.

To the extent that this model captures reality, figure 9-4 suggests caution when attempting to estimate the empirical correlation between growth and the size of government (as measured by either revenue or spending). If countries are assumed to have similar tax structures but different tax rates that are distributed randomly along the curve, estimates of the relationship could be positive or negative. The absolute value of the coefficient on the size of government in a growth regression could range from zero (at point B) to infinity (at point C). Even the interpretation of the coefficient is ambiguous. Both the segments AB and CD imply a

Figure 9-3. Tax Rates and Growth, Alternative Assumptions

Figure 9-4. Tax Revenue and Growth, Exogenous Saving Rate
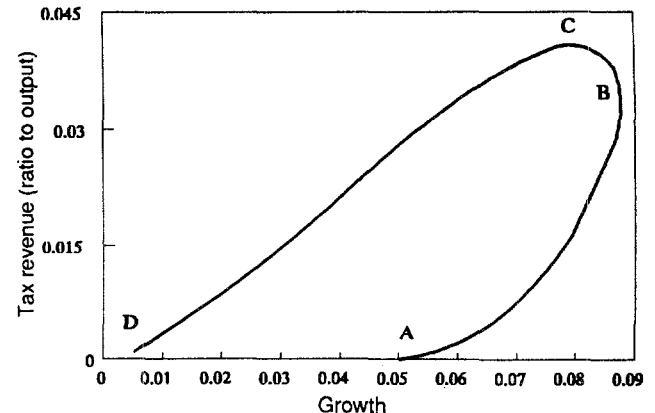
positive relationship, but for much different reasons—the former because hikes in the tax rate increase both growth and revenues and the latter because hikes in the rate decrease both. Causation is also problematic since both tax revenue and growth are endogenous.

To try to pin down where governments might wind up on figure 9-4 is a task for theorists of political economy. Benevolent growth-maximizing governments would tend to cluster around B. (As Barro 1989a pointed out in a similar context, if a regression between growth and size of government is estimated from such a sample, the erroneous conclusion would be reached that there was no relationship between the two.) The Buchanan-type patronage-maximizing state would move more toward point C (but not all the way if it also valued future patronage, which will increase with higher growth). In general, a rational state valuing some mixture of patronage and growth would be found in seg-ment BC, which could explain the negative relationship found in the empirical work. However, there are examples from the literature on the political economy of irrational outcomes from game-theoretic interactions between factions or coalitions that could result in governments falling along the AB or CD segments (Findlay 1989 and Haggard 1989).

Optimal Saving Behavior, Government Spending and Growth

With optimal saving behavior, consumers-producers are again assumed to maximize the sum of intertemporal utility (equation 9-6). Consumption C is still constrained by:

$$(9-19) \quad C = Y - e^\tau I_1 - I_2 + T$$

where
C = consumption
Y = output
I_1 = investment in private type 1 capital
I_2 = investment in private type 2 capital
T = lump-sum transfers of revenues to consumers.

Consumers will take lump-sum transfers as given, but they are given by:

$$(9-20) \quad T = (1 - s_G)(e^\tau - 1) I_1$$

where
T = lump-sum transfers of revenues
SG = government saving
I_1 = investment in private type 1 capital.

Consumers are assumed to be so small relative to the total economy that they do not take into account the contribution their taxes make to public capital.

The growth rate will again be given by equation (9-10)—the difference between the marginal product of type 2 capital (net of depreciation) and the rate of time preference times the intertemporal elasticity of substitution. The marginal product of type 2 capital is now given by:

$$(9-21) \quad r_2 = \lambda^{1-\eta}(\gamma_1 + \gamma_2 B^\rho)^{\frac{\eta}{\rho}-1} \gamma_2 B^{\rho-1}$$

where
r_2 = the marginal product of private type 2 capital
λ = the ratio of output to private type 1 capital
B = the ratio of private type 2 capital to private type 1 capital.

The resulting relationship between the rate of growth and the rate of taxation was shown in figure 9-3. As in the case of exogenous saving, initially the relationship is positive between taxes and growth, where the benefit of more tax-financed government capital outweighs the distortionary effect of the tax. However, the maximum rate of growth is reached at a much lower tax rate, and the maximum rate is itself much lower, than in the case of exogenous saving. With an intertemporal elasticity of less than unity, as in this simulation, the minimum rate of growth is higher than under exogenous saving (as in the previous model).

Empirical Results

The absence of good measures of distortion hamper the testing of the relationship between the rates of distortion and growth. The lack of comprehensive data on the accumulation of human capital is also a problem. This section presents some attempts to measure fiscal variables and distortions crudely to test their cross-section relationship to growth, with the sample limited to developing countries. Although cross-section regressions are subject to problems of interpretation and causation, they are a useful device in identifying empirical associations in the data that roughly correspond to long-run steady-state behavior.[19]

In the first regression presented here (appendix 1 presents the results), the rate of growth of gross output (Y6588) is regressed on the ratio of investment to GDP (IY6588), the growth rate of the labor force (LFORCE), the change in the share of exports in GDP over the sample period (DIFEXP), and the share of government consumption in GDP (GY6588). The export share variable is a rough measure of whether the trading system is open, a calculation that is intended to capture the existence or absence of large implicit or explicit taxes on imports. The share of government consumption in GDP corresponds to the portion of government revenue collected that does not go to capital accumulation (although some revenue may support the accumulation of human capital). Dummies for Africa and Latin America that other schol-

ars have reported were also tested. As shown in regression B, "openness" (DIFEXP) emerges as having a significant positive effect on growth, while government consumption has a significant negative effect. This regression instruments for the rate of investment because of possible simultaneity. When the change in the share of exports is also instrumented (regression C), it becomes significant only at the 10 percent level. The dummy variable for Latin America is marginally significant, but not the dummy variable for Africa.

The export share variable is vague as a test of import distortions. Another alternative involving a direct subjective classification of countries as "inward-oriented" (from World Bank 1987), with a dummy variable for those countries, was also tested. Further, a dummy variable for countries with distortionary controls on interest rates, defined as those countries in which real interest rates were less than -5 percent (from Gelb 1989), was tested. As shown in regressions D, E and F, both these dummy variables are highly significant. Trade and financial distortions each cause a loss of growth of about 1.5 percentage points on average. The government consumption variable is still negative and close to being significant at the 5 percent level. These results suggest that distortions have a strong effect on growth, as predicted by the theoretical model. However, the effect is small enough to be within the bounds predicted by the model, with a production elasticity greater than one.

Conclusions

The stylized model in this chapter shows how government-induced distortions can affect the rate of growth in an endogenous growth model, both with and without effects on saving. The results suggest that predicting the effect of distortions on growth depends a great deal on structural parameters and initial conditions, especially the elasticity of substitution of different types of capital, the intertemporal elasticity of substitution, the rate of government saving and the level of government capital. Government saving and the collection of tax revenue can both be either too large or too small.

While this model is too simple to afford detailed policy advice, it suggests some basic principles. The policy-maker should attempt to identify and move along the steeply-sloped portion of the growth-distortion relationship. In the exogenous saving model, this finding means ignoring small distortions and making large reductions in very significant initial distortions. With endogenous saving, even small distortions can be costly, but it continues to hold that small changes in large distortions have a minimal effect on growth. Since policy reform is so politically costly, it would be unfortunate if policy-makers expended political capital on partial reforms whose long-run effects on growth are likely to be disappointing.

Appendix 1. Results of the Regressions and Definitions and Sources of the Variables

The Results

The following regression tables present the results of regressions A through F. The variables are defined in the section following the tables.

A. Ordinary least-squares/dependent variable is Y6588
(number of observations: 70)

Variable	Coefficient	Standard error	T-statistic	2-tail significance
Constant	1.4666681	1.1305687	1.2972835	0.199
IY6588	0.1091513	0.0353577	3.0870592	0.003
LFORCE	1.1792242	0.3092298	3.8134240	0.000
DIFEXP	0.0595169	0.0180365	3.2997982	0.002
GY6588	-0.0977830	0.0441492	-2.2148313	0.030
LADUM	-1.9046779	0.5996525	-3.1763026	0.002
AFDUM	-1.4425643	0.5179855	-2.7849513	0.007

R^2	0.471407	Mean of dependent	
Adjusted R^2	0.421065	variable	4.149281
Standard error of		Standard deviation of	
regression	1.730117	dependent variable	2.273843
Durbin-Watson		Sum of squared	
statistic	1.673639	residual	188.5783
Log likelihood	-134.0113	F-statistic	9.364044

B. Two-stage least-squares/dependent variable is Y6588
(number of observations: 69)

Variable	Coefficient	Standard error	T-statistic	2-tail significance
Constant	-0.7011407	1.8319876	-0.3827213	0.703
IY6588	0.2294921	0.0897952	2.5557277	0.013
LFORCE	1.0133875	0.3491735	2.9022459	0.005
DIFEXP	0.0529485	0.0216968	2.4403774	0.018
GY6588	-0.1241806	0.0599143	-2.0726352	0.042
LADUM	-1.3148390	0.7889153	-1.6666415	0.101
AFDUM	-1.0501771	0.6737135	-1.5587887	0.124

R^2	0.386402	Mean of dependent	
Adjusted R^2	0.327022	variable	4.166158
Standard error of		Standard deviation of	
regression	1.875392	dependent variable	2.286081
Durbin-Watson		Sum of squared	
statistic	1.581796	residual	218.0598
Log likelihood	-137.6046	F-statistic	6.507238

Instrument list: C LFORCE DIFEXP GY6588 LDUM AFDUM PRIM AGL URBPOP IET RIOT CIVLIB

C. Two-stage least-squares/dependent variable is Y6588
(number of observations: 32)

Variable	Coefficient	Standard error	T-statistic	2-tail significance
Constant	2.4672395	1.2716152	1.9402407	0.064
IY6588	0.1468687	0.0722230	2.0335452	0.053
LFORCE	0.8796042	0.3364464	2.6143958	0.015
DIFEXP	0.0540633	0.0303997	1.7784154	0.088
GY6588	-0.2252280	0.0962568	-2.3398655	0.028
LADUM	-1.3188960	1.0736029	-1.8265540	0.080
AFDUM	-0.8222876	1.0736029	-0.7659141	0.451

R^2	0.648085	Mean of dependent		
Adjusted R^2	0.608266	variable		4.16124
Standard error of		Standard deviation of		
regression	1.206383	dependent variable		1.927478
Durbin-Watson		Sum of squared		
statistic	1.319851	residual		36.38400
Log likelihood	-47.46033	F-statistic		9.022545

Instrument list: C LFORCE DIFEXP GY6588 LADUM
AFDUM PRIM AGL URBPOP IET RIOT CIVLIB RERSD
TDUM

D. Ordinary least-squares/dependent variable is Y6588
(number of observations: 23)

Variable	Coefficient	Standard error	T-statistic	2-tail significance
Constant	3.7031913	1.4793810	2.5032032	0.023
IY6588	0.1739718	0.0345686	5.0326492	0.000
LFORCE	0.2578677	0.3220675	0.8006636	0.434
GY6588	-0.1667834	0.0873915	-1.9084638	0.073
TDUM	-1/5575002	0.4655863	-3.3452451	0.004
FDUM	-1.7311805	0.4993963	-3.4665463	0.003

R^2	0.816882	Mean of dependent		
Adjusted R^2	0.763024	variable		4.299200
Standard error of		Standard deviation of		
regression	1.025268	dependent variable		2.106128
Durbin-Watson		Sum of squared		
statistic	1.878833	residual		17.86996
Log likelihood	-29.73329	F-statistic		15.1625

E. Two-stage least-squares/dependent variable is Y6588
(number of observations: 23)

Variable	Coefficient	Standard error	T-statistic	2-tail significance
Constant	3.6112415	1.4910847	2.4218889	0.027
IY6588	0.1834878	0.0383169	4.7886956	0.000
LFORCE	0.2450439	0.3235372	0.7573901	0.459
GY6588	-0.1746110	0.0886146	-1.9704534	0.065
TDUM	-1.5457438	0.4670607	-3.3095139	0.004
FDUM	-1.7120726	0.5015859	-3.4133189	0.003

R^2	0.816066	Mean of dependent		
Adjusted R^2	0.761967	variable		4.299200
Standard error of		Standard deviation of		
regression	1.027550	dependent variable		2.106128
Durbin-Watson		Sum of squared		
statistic	1.866252	residual		17.94961
Log likelihood	-29.78444	F-statistic		15.08485

Instrument list: C LFORCE GY6588 TDUM FDUM AFDUM
LADUM PRIM AFL URBPOP IET RIOT CIVLIB

F. Two-stage least-squares/dependent variable is Y6588
(number of observations: 22)

Variable	Coefficient	Standard error	T-statistic	2-tail significance
Constant	4.0297392	1.7968652	2.2426497	0.039
IY6588	0.1762197	0.0395366	4.4571276	0.000
LFORCE	0.2335276	0.3510087	0.6653043	0.515
GY6588	-0.1799308	0.0916823	-1.9625468	0.067
TDUM	-1.8116901	0.7165778	-2.5282533	0.022
FDUM	-1.7394032	0.5636737	-3.0858338	0.007

R^2	0.810246	Mean of dependent		
Adjusted R^2	0.750948	variable		4.357849
Standard error of		Standard deviation of		
regression	1.066162	dependent variable		2.136381
Durbin-Watson		Sum of squared		
statistic	1.965986	residual		18.18724
Log likelihood	-29.12310	F-statistic		13.66397

Instrument list: C LFORCE GY6588 FDUM1 AFDUM
LADUM PRIM AGL URBPOP IET RIOT CIVLIB RERSD
RIR

Definitions and Sources of the Variables

The data are for the time period 1965-87 (and 1988 if the data were available) unless otherwise specified.

Variables.

Y6588 = average annual rate of growth of GDP, calculated by regressing the log of GDP (in constant 1980 prices) for the full sample against time. The data on GDP are from the World Bank database.

IY6588 = gross domestic investment as a share of GDP, 1965-88, average for the full sample, with

data from the Bank Economic and Social Database (BESD).

LFORCE = average annual rate of growth of the population of working age (15-64), 1965-85, for the full sample. The data are based on the World Development Indicators, World Bank (1987, p. 264).

GY6588 = government consumption as a share of GDP, average 1965-88, for the full sample. The data are from BESD, the World Bank database.

DIFEXP = average share of exports (exports of goods and non-factor services) in GDP for the last five years of data (1982-87/1983-88) minus the average share of exports in the first five

years (1965-70), for the full sample. The data are from the World Bank database.

PRIM = primary school enrollment as a percent of the school-age population in 1965, for the full sample. The data are from the World Development Indicators (World Bank 1988, pp. 280-81).

AGL = percent of the labor force in agriculture, 1965, for the full sample. The data are from the World Development Indicators (World Bank 1988, pp. 280-81).

URBPOP = urban population as a percent of the total population, 1965, for the full sample. The data are from the World Development Indicators (World Bank 1988, pp. 284-85).

RERSD = real exchange rate standard deviation. The calculations are based on data on the real exchange rate of Country Economic Department, Macroeconomic Adjustment and Growth (CECMG) of the World Bank.

Dummy variables.

AFDUM = dummy variable for African countries—1 if the country is African, zero otherwise.

LADUM = dummy variable for Latin American countries—1 if the country is Latin American, zero otherwise.

TDUM = dummy variable for trade policy distortions—1 if the country is inward-oriented, zero otherwise. The country classifications are based on World Bank (1987, Annex 3).

FDUM = dummy variable for the financial policy distortions—1 if the real interest rate is less than -5 percent, zero otherwise. This variable is based on World Bank (1989b). The data for 1965-85 are from Gelb (1989).

IET = dummy variable for irregular executive transfers (e.g., military coup) for the period 1958-77—1 if there was more than 1 irregular executive transfer, zero otherwise. The information is from Barro (1991) (originally collected by Taylor and Jodice).

RIOT = dummy variable for riots between 1958 and 1977—1 if there were more than 25, zero otherwise. The information is from Barro (1991) (originally collected by Taylor and Jodice).

CIVLIB = dummy variables for civil liberties—1 for political systems in which full democratic elections are blocked constitutionally or have little significance in determining the distribution of power through those that are tyrannies (Gastil's categories 4 through 7), zero otherwise (Gastil's

categories 1-3). The information is based on Gastil's index of civil liberties and freedom (Barro 1991).

Appendix 2. Country Classifications and Samples

Country Classifications

The dummy variable used as an indicator of trade distortion is based on the trade policy classification in the World Development Report 1987 (World Bank 1987), which uses the effective rate of protection, the use of direct controls such as quotas and import licensing schemes, the use of export incentives and the degree of overvaluation of the exchange rate. In determining the classification for the entire period (1965-88), the period from 1973-85 is weighted more heavily than that from 1963-73 because of its longer time span.

The classification used here is as follows:

Strongly outward-oriented

Hong Kong (HKG) Korea (KOR)   Singapore (SGP)

Moderately outward-oriented

Brazil (BRA)	Chile (CHL)	Israel (ISR)
Malaysia (MYS)	Thailand (THA)	Tunisia (TUN)
Turkey (TUR)	Uruguay (URY)	

Moderately inward-oriented

Cameroon (CMR)	Colombia (COL)	Costa Rica (CRI)
Côte d'Ivoire (CIV)	El Salvador (SLV)	Guatemala (GTM)
Honduras (HND)	Indonesia (IDN)	Kenya (KEN)
Mexico (MEX)	Nicaragua (NIC)	Pakistan (PAK)
Senegal (SEN)	Sri Lanka (LKA)	Yugoslavia (YUG)

Strongly inward-oriented

Argentina (ARG)	Bangladesh (BGD)	Bolivia (BOL)
Burundi (BDI)	Ethiopia (ETH)	Ghana (GHA)
India (IND)	Madagascar (MDG)	Nigeria (NGA)
Peru (PER)	Sudan (SDN)	Tanzania (TZA)
Zambia (ZMB)		

Some countries changed classification between the two periods. Cameroon, Colombia, Costa Rica, Côte d'Ivoire, Guatemala and Indonesia moved from the moderately outward-oriented classification in 1963-73 to the moderately inward-oriented classification in the 1973-85 period. Tunisia moved from moderately inward-oriented to moderately outward-oriented. Chile, Turkey and Uruguay moved from strongly inward-oriented to moderately outward-oriented. Finally, Bolivia, Madagascar and Nigeria moved from moderately inward-oriented to strongly inward-oriented. (For further detail, see World Bank 1987, pp. 82-83.)

The financial distortion dummy was based on a classification of the real rate of interest. Positive real interest rates

are greater than zero; moderately negative rates are between 0 and -5 percent; and strongly negative rates are less than -5 percent. The classification is as follows:

Positive	Moderately negative	Strongly negative
Chile (CHL)	Brazil (BRA)	Algeria (DZA)
India (IND)	Côte d'Ivoire (CIV)	Argentina (ARG)
Korea (KOR)	Indonesia (IDN)	Ecuador (ECU)
Malaysia (MYS)	Malawi (MWI)	Ghana (GHA)
Singapore (SGP)	Morocco (MAR)	Jamaica (JAM)
Sri Lanka (LKA)	Pakistan (PAK)	Mexico (MEX)
Thailand (THA)	Philippines (PHL)	Nigeria (NGA)
	Portugal (PRT)	Peru (PER)
	Senegal (SEN)	Sierra Leone (SLE)
	Tunisia (TUN)	Tanzania (TZA)
	Uruguay (URY)	Turkey (TUR)
		Yugoslavia (YUG)
		Zaire (ZAR)
		Zambia (ZMB)

See Gelb (1989) and World Bank (1989b) for further detail.

Full Country Sample

Note that in any given regression the number of observations may be less than the full sample size because of missing data:

Argentina	Haiti	Pakistan
Benin	Honduras	Panama
Bolivia	Hungary	Papua New Guinea
Botswana	India	Paraguay
Brazil	Indonesia	Peru
Burkina Faso	Iran	Philippines
Burundi	Israel	Portugal
Cameroon	Jamaica	Rwanda
Central African Rep.	Jordan	Senegal
Chad	Kenya	Somalia
Chile	Korea	South Africa
China	Lesotho	Sri Lanka
Colombia	Madagascar	Sudan
Congo	Malawi	Syria
Costa Rica	Malaysia	Tanzania
Côte d'Ivoire	Mali	Thailand
Dominican Republic	Malta	Togo
Ecuador	Mauritania	Trinidad & Tobago
Egypt	Mauritius	Tunisia
El Salvador	Mexico	Turkey
Ethiopia	Morocco	Uruguay
Fiji	Nicaragua	Yugoslavia
Gambia, The	Niger	Zaire
Ghana	Nigeria	Zambia
Guatemala		

Intersection of Trade Policy Sample and Financial Policy Sample

Argentina	Malaysia	Sri Lanka
Brazil	Mexico	Tanzania
Chile	Nigeria	Thailand
Côte d'Ivoire	Pakistan	Tunisia
Ghana	Peru	Turkey
India	Philippines	Uruguay
Indonesia	Senegal	Yugoslavia
Korea	Singapore	Zambia

Notes

1. This chapter is a substantially revised version of a paper that appeared earlier as NBER Working Paper No. 3214. I am grateful for the comments of Stanley Fischer, Robert Barro, Rudiger Dornbusch, Sergio Rebelo, Michael Gavin, Bela Balassa, Ricardo Martin, Deborah Wetzel, Surjit Bhalla and participants in seminars at the World Bank and in the NBER Growth Workshop, October 1990.

2. See Easterly and Wetzel (1989) for a survey.

3. The literature analyzing convergence has found evidence of convergence among rich countries but in general not on a global scale (Romer 1986, Baumol 1986, De Long 1988, Barro 1991, and Barro and Sala-i-Martin 1989).

4. See World Bank (1988) for a general discussion of tax systems in developing countries.

5. This statement ignores the issue of whether those countries measured their growth accurately.

6. The model was applied to socialist countries in Easterly (1991).

7. Atkinson and Stiglitz (1980, p. 237) noted this equivalence.

8. The model differs from the seminal analysis of Barro (1989a) in focus on the distortionary nature of taxation and the existence of an informal sector in this model, as well as in the generalization to non-tax distortions. The present model thus adds an element of intratemporal distortion of resource allocation to the intertemporal distortion discussed by Barro.

9. If income from type 1 capital is being taxed, then the income tax rate t equivalent to the exponential sales tax τ is $t = 1 - \exp(-\tau)$.

10. The analysis would be the same if there were exogenous capital flows such as foreign aid or official lending that permitted a trade deficit, or if the economy was subject to exogenous credit rationing in the international markets. Few developing countries have fully open capital markets. In any case, consideration of the effects of such openness is beyond the scope of this chapter.

11. The parameter values are $s = .2$, $\alpha = .05$, $\gamma_1 = \gamma_2 = .5$, and $\rho = .5$. Sensitivity testing confirms that the shape of the function is the same for alternative values except for ρ, as noted in the text.

12. For example, a study of the Philippines found sharply increasing static costs for successive increases in the rates of taxation of imports (World Bank 1988).

13. The variable T is the lump-sum transfer, ex-post equal to $e^\tau I_1$ but treated by the consumer as fixed.

14. The additional parameters for the simulation are $sigma = 7$ (intertemporal elasticity = .14) and $r = .1$. The sensitivity of the

results to these parameters is discussed below.

15. This result is similar to those in King and Rebelo (1990), which found that small differences in tax rates could have major consequences in an optimal saving model, even without the static distortions considered here. Note that if the intertemporal elasticity of substitution equals one (log utility), the propensity to consume capital will not respond to rates of return. However, the share of consumption and saving in income will still be affected by the rate of distortion, in contrast to the Solow model.

16. Haque and Montiel (1987) found that Ricardian equivalence was rejected in 15 out of 16 developing countries they tested.

17. Aschauer (1989) and Shah (1988) found that public capital spending in the United States and Mexico, respectively, had productive effects. Barro and Sala-i-Martin (1990) considered different ways in which government spending could enter the production function, only one of which is addressed here.

18. The parameter values are the same as in the previous simulations. The new parameters are $\eta = .5$, $\gamma_G = .5$, and $s_G = .5$.

19. The empirical results in this section are taken from Easterly and Wetzel (1989).

References

Aschauer, David. 1989. "Is Public Expenditure Productive?" *Journal of Monetary Economics* (March):177-200.

Atkinson, Anthony, and Joseph E. Stiglitz. 1980. *Lectures on Public Economics*. New York: McGraw-Hill.

Barro, Robert J. 1989. "A Cross-Country Study of Growth, Saving and Government." NBER Working Paper No. 2855. National Bureau of Economic Research. Cambridge, Mass.

———. 1991. "Economic Growth in a Cross Section of Countries." *The Quarterly Journal of Economics* 106 (2)(May):407-502.

Barro, Robert J., and Xavier Sala-i-Martin. 1989. "Economic Growth and Convergence Across the United States." National Bureau of Economic Research (NBER). Cambridge, Mass.

———. 1990. "Public Finance in Models of Economic Growth." NBER Working Paper No. 3362. National Bureau of Economic Research. Cambridge, Mass.

Baumol, William J. 1986. "Productivity Growth, Convergence, and Welfare." *American Economic Review* 76 (5)(December):1042-85.

Chamley, Christophe, and Hafez Ghanem. 1990. "Fiscal Policy in Côte d'Ivoire." Mimeo. World Bank. Washington, D.C.

Chenery, H., S. Robinson and M. Syrquin. 1986. *Industrialization and Growth: A Comparative Study*. Oxford University Press.

Corden, M. 1971. "The Effects of Trade on the Rate of Growth." In J. Bhagwati, et al. (eds.), *Trade, Balance of Payments, and Growth: Papers in Honor of Charles P. Kindleberger*. Amsterdam: North-Holland Publishing Co.

de Soto, Hernando. 1987. *El Otro Sendero*. Bogota: Editorial Oveja Negra.

De Long, J. Bradford. 1988. "Productivity Growth, Convergence, and Welfare: Comment." *American Economic Review* (December).

Easterly, William. 1990. "How Does Growth Begin? Models of Endogenous Development." Background paper for the *World Development Report 1991*. Washington, D.C.

———. 1991. "Distortionary Policies and Growth in Socialist Economies". In V. Corbo, F. Coricelli and J. Bossak (eds.), *Reforming Central and Eastern European Economies: Initial Results*

and Challenges. Washington, D.C.: World Bank.

Easterly, William, and Deborah Wetzel. 1989. "Policy Determinants of Growth: Survey of Theory and Evidence." World Bank, Policy, Planning and Research (PPR) Working Paper Series WPS 343. Washington, D.C.

Findlay, Ronald. 1989. "Is the New Political Economy Relevant to Developing Countries?" World Bank, Policy, Planning and Research (PPR) Working Paper Series WPS 292. . Washington, D.C.

Gelb, Alan. 1989. "A Cross-Section Analysis of Financial Policies, Efficiency and Growth." World Bank. Washington, D.C.

Haggard, Stephan. 1991. "Inflation and Stabilization," 233-49. In Gerald M. Meier (ed.), *Politics and Policy Making in Developing Countries*. San Francisco, Calif.: ICS Press. 233-49.

Haque, Nadeem Ul, and Peter Montiel. 1987. "Ricardian Equivalence, Liquidity Constraints, and the Yaari-Blanchard Effect: Tests for LDCs." Mimeo. International Monetary Fund. Washington, D.C.

Islam, R., and D. Wetzel. 1991. "Macroeconomics of the Public Sector Deficit: The Case of Ghana." World Bank. Washington, D.C.

Jones, Larry, and Rodolfo Manuelli. 1990. "A Convex Model of Equilibrium Growth". *Journal of Political Economy*. 78(5): pp. 1008-38.

King, Robert, and Sergio Rebelo. 1989. "Transitional Dynamics and Economic Growth in the Neoclassical Model." NBER Working Paper No. 3185. National Bureau of Economic Research. Cambridge, Mass.

———. 1990. "Public Policy and Economic Growth: Developing Neoclassical Implications." *Journal of Political Economy*. 98 (5)(Part 2)(October): 5126-50.

Krueger, Anne O. 1978. *Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences*. Cambridge, Mass.: National Bureau of Economic Research.

Lucas, R. E. 1988. "On the Mechanics of Economic Development." *Journal of Monetary Economics* 22 (1)(July):3-42.

Rebelo, Sergio. 1991. "Long Run Policy Analysis and Long Run Growth." *Journal of Political Economy*. June.

Reynolds, Lloyd G. 1985. *Economic Growth in the Third World, 1850-1980*. New Haven and London: Yale University Press.

Rodrik, Dani. 1988. "Closing the Productivity Gap: Does Trade Liberalization Really Help?" Mimeo. Kennedy School of Government. Harvard University. Cambridge, Mass.

Romer, P. M. 1986. "Increasing Returns and Long-Run Growth." *Journal of Political Economy* 94 (5):1002-37.

———. 1987. "Crazy Explanation for the Productivity Slowdown." In S. Fischer (ed.), *NBER Macroeconomic Annual*. Cambridge, Mass.: MIT Press.

———. 1988. "Endogenous Technological Change." University of Chicago. Chicago. May.

———. 1989a. "Human Capital and Growth: Theory and Evidence." A paper prepared for the Conference on Human Capital and Growth, State University of New York (SUNY), Buffalo, N.Y., April.

———. 1989b. "What Determines the Rate of Growth and Technological Change?" World Bank, Policy, Planning and Research (PPR) Working Paper Series WPS 279. Washington, D.C.

Shah, Anwar. 1988. "Public Infrastructure and Private Sector Profitability in Mexico." World Bank, Policy, Planning and Research (PPR) Working Paper Series WPS 100. Washington, D.C.

Solow, Robert. 1956. "A Contribution to the Theory of Economic Growth." *Quarterly Journal of Economics* 70 (February):65-94.

World Bank. 1987. *World Development Report 1987*. New York: Oxford University Press.

———. 1988. *World Development Report 1988*. New York: Oxford University Press.

———. 1989a. *Sub-Saharan Africa: From Crisis to Sustainable Growth*. Washington, D.C.

———. 1989b. *World Development Report 1989*. Oxford University Press.

Comment

Robert J. Barro

William Easterly's study presents interesting theoretical and empirical analyses related to the effects of government-induced distortions and expenditures on economic growth. I will discuss aspects of the theoretical models and then present some empirical results to supplement the findings in this chapter.

Easterly presents two kinds of models: one relies on exogenous, constant rates of saving; and the other assumes privately optimal saving by representative, infinitely-lived households/producers. The particular model of optimal saving used in the study, although standard in the growth literature, can be criticized for ignoring uncertainty, distributional effects, imperfections in the capital market, finite-life effects and so on. However, it is hard to regard a fixed rate of saving at an arbitrary level as an interesting alternative.

The most important implication of optimal saving seems to be that for people to be willing to defer consumption from the present to the future, they have to be compensated in the form of a higher (expected) after-tax real interest rate, r. This property is likely to be robust to many changes in the framework, such as the omissions just mentioned. The property is also important in studying growth because it implies a positive association between r and the rate of growth of per capita consumption. (The standard model, used by Easterly, also implies that this relation is not affected by shifts in the level of per capita consumption.) In a steady state, output and consumption grow at the same rate. Therefore, for given preference parameters, the optimal saving model implies that the real interest rate and the per capita growth rate are positively correlated across steady states.[1]

In the class of optimal saving models that Easterly considers, the key relation can be written as

(9-C-1) $r_2 = \lambda^{1-\eta}(\gamma_1 + \gamma_2 B^\rho)^{\frac{\eta-1}{\rho}} \gamma_2 B^{\rho-1}$

where

γ = the steady-state rate of growth of per capita output

c = per capita consumption

σ = the magnitude of the elasticity of marginal utility with respect to c ($1/\sigma$ is the inter-temporal elasticity of substitution for c)

r = the after-tax real interest rate and

ρ = the rate of time preference (denoted as r by Easterly).

The right-hand equality in equation (9-C-1) reflects household preferences as discussed above. The left-hand equality applies in the steady state when output and consumption grow at the same rate.

In this model, the impact of government distortions and expenditures on the steady-state rate of growth, γ, reflects the effects on r. Easterly assumes that production involves two types of capital inputs. The first type is taxed or regulated, whereas the second is not. Because the relative prices of all goods are fixed (say, at unity), the rate of return r equals the marginal product of the taxed good. A higher tax rate induces substitution from the taxed to the untaxed input and thereby reduces the marginal product of the untaxed good. It follows that r declines and that, as it follows from equation (9-C-1), the rate of growth, γ, declines.

In a later section, Easterly allows government infrastructure to have a positive impact on the marginal products of the two types of private capital. In this case, an increase in the government's investment in infrastructure, when financed by the distorting tax on type 1 capital, has offsetting effects on the marginal product of type 2 capital. If government infrastructure is small, the first effect tends to dominate so that r and γ initially rise with an expansion of government. In the case of a larger government, the distortion effect dominates, so the r and γ decline as the government gets bigger. It is also possible to go beyond the peak in the Laffer curve so that a higher tax rate means lower growth and less government revenue (possibly even as a share of output). In most cases, however, rational governments do not operate in this range.

The effects are similar in my model (Barro 1990), which assumes a single type of capital with constant returns (the

"Ak model") and a proportionate tax rate on the income from capital. For a given marginal product of capital, a higher tax rate has a negative effect on the after-tax rate of return, r, and, hence, a negative effect on the rate of growth, γ. Again, a direct effect of government services on the marginal product of capital offsets the tax distortion.

An interesting question in this type of model is the predicted relation between the rate of growth and the share of various types of government expenditures on GDP. The difficulty is that the correlation depends on the theory of government as well as the model of the private economy. At least three kinds of public sector objectives have been used as a basis for endogenous government within this type of framework: first, randomization (that is, the size of government is independent of the other variables under study); second, maximization of the utility attained by the representative household (or, more generally, benevolent government); and third, maximization of the utility of a governmental dictator. Under some conditions, the second type of model could apply to self-interested politicians who are subject to electoral and other constraints from the populace.

The first type of model generates the predictions suggested above. With a low level of government as the starting point, an increase in tax-financed, productive government expenditures as a share of GDP leads initially to higher growth. At a higher level of government, the relation reverses signs. Thus, for a cross-section of countries, this model predicts a non-monotonic, but well-defined, relation between the rate of growth and the share of productive government expenditures in GDP. For non-productive government spending (which might enter into household utility functions), the predicted relation is negative throughout. That is, a direct influence on the marginal product of capital does not offset the distortion effect.

In Barro (1990), I considered a model in which the government maximizes the utility of the representative household. The utility-maximizing ratio of productive public spending to GDP in that model turns out to be the ratio that maximizes the per capita rate of growth. If countries differ in the nature of their technology, then the optimal share of government in GDP may differ. However, the main implication of this model is that the observed correlation between growth and the share of productive public spending in GDP is close to zero. (The result is essentially the first-order condition for the maximization of the rate of growth.) In fact, this hypothesis accords with the empirical results from cross-country growth regressions: the estimated coefficient of the share of public investment in total investment is close to zero (Barro 1991, table 4). However, it is hard to tell whether this result means that governments are optimizing or that the distinction between public and private investment (at least as measured) is negligible. On the other hand, there is some indication that growth is systematically negatively related to the share of government consumption spending in

GDP (Barro 1991, table 1). If government consumption enters into household utility, then this result is predicted by the model of benevolent government.

I have also considered the dictator version of public spending within the Ak model with non-productive government spending. The dictator is assumed to have the same form of preferences as that of the representative household. Although the dictator cares only about own utility, he or she cares indirectly about economic growth because it expands the pie that he or she can tax later on. It turns out that an improvement in technology (parameter A) raises the growth rate and lowers the tax rate. An increase in the rate of time preference, ρ, or a decrease in the willingness to substitute consumption intertemporally (a higher σ), lowers the growth rate and raises the tax rate. Therefore, disturbances in terms of technology or preferences all generate an inverse relation between the growth rate and the tax rate (which equals the share of government spending in GDP in this model). Thus, although the public sector's objective is different, the theoretical prediction about the relation between unproductive government spending and growth is the same as that in the model with a benevolent government. As mentioned, there is also some empirical support for this prediction.

Easterly's study presents some interesting empirical results concerning the association between economic growth and measures of openness of trade and distortions in the financial market. The openness measure, TDUM (1 for outward-oriented and 0 for inward-oriented policy) comes from the World Bank's (1987) four-way classification, which combines a number of quantitative indexes of trade orientation. One danger of the subjective classification is that the classifier already knows too much about the growth performance when making decisions. Chad Jones, a graduate student at the Massachusetts Institute of Technology, has compiled measures of effective protection rates (EPRs) based on an array of World Bank and other studies on individual countries (many of which are inputs into the World Bank's measure of trade orientation). These data are subject to substantial measurement problems and also cover different years for each country. Accordingly, I used the quantitative information only to construct a dummy variable, EPRDUM, that equaled 1 if the EPR exceeded a "high" value, taken to be 40 percent, and 0 otherwise. The correlation between EPRDUM and TDUM for the 51 countries that have data on both variables is 0.61.[2]

I entered the variables TDUM and EPRDUM into a cross-country regression for 51 countries of the type that I ran previously (Barro 1991). The other independent variables are 1960 per capita GDP (from Summers and Heston 1988), primary and secondary school rates of enrollment in 1960, the average share of government consumption (exclusive of defense and education) in GDP from 1970 to 1985, measures of the numbers of revolutions, coups and political assassinations, and the deviation of the value of the 1960

purchasing price parity (PPP) for investment from unity (from Summers and Heston 1988). The estimated coefficients on the two dummy variables are -.0138 (standard error = .0042) for TDUM and -.0117 (.0036) for EPRDUM. (Easterly's results for 22 countries, shown in appendix 1 of his chapter, reported a coefficient on TDUM of -.0181 [0072]). Thus, I find that the openness dummy and the EPR dummy are each negatively and significantly related to growth. A country that is distorted in accordance with both measures would have lower estimated per capita growth of about 2-1/2 percent a year.

If I add Easterly's financial market distortion variable RDUM (which equals 1 if the real interest rates averaged less than -5 percent a year and 0 otherwise), the results for 45 countries are -.0103 (.0047) for RDUM, -.0121 (.0064) for TDUM, and -.0127 (.0044) for EPRDUM. Thus, a country that is distorted according to all three measures would experience a reduction in the estimated per capita rate of growth of about 3-1/2 percent. The countries in the sample in this category are Ghana, Nigeria, Tanzania, Argentina and Peru.

De Long and Summers (1991) argue that investment in equipment plays a special role in economic growth. Specifically, rates of growth tend to be higher the higher the share of investment in equipment in GDP. This quantity share tends, in turn, to be higher the lower the relative price of equipment. It may be, however, that the equipment share variable is a proxy for the types of distortions captured by the dummy variables discussed above. In fact, when TDUM and EPRDUM are included in a cross-country regression (41 countries), the estimated coefficient of the share of in investment equipment in GDP is positive, although insignificant: .088 (.066).[3] This variable is significant in the same sample if the variables TDUM and EPRDUM are excluded; the estimated coefficient is then .181 (.077).

Easterly's chapter makes significant progress in understanding the link between government activities and economic growth. The empirical findings about the effects of distortions are particularly interesting, and further work along this line is likely to be fruitful.

Notes

1. Easterly observes in his chapter that "[o]ther implications of the optimal saving models, such as Ricardian equivalence, have not been supported by evidence in developing countries." Ricardian equivalence is, in fact, not a necessary implication of optimal saving; for example, it does not obtain in Blanchard's (1985) model that allows individuals to die probabilistically and that assumes no intergenerational transfers. Moreover, Ricardian equivalence seems to be a reasonable first-order approximation to the data (see Barro 1989b).

2. The World Bank sample provides information on 40 developing countries that are also in my sample. Because the data did not cover developed countries, I included the value TDUM = 0 for 21 additional countries: Japan, China, Taiwan, Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, Canada, United States, Australia and New Zealand.

3. The data are the share of GDP for investment in equipment from 1960 to 1985, taken from De Long and Summers (1991, appendix IV).

References

Barro, R. J. 1989b. "The Ricardian Approach to Budget Deficits." *Journal of Economic Perspectives* (Spring).

———. 1990. "Government Spending in a Simple Model of Endogenous Growth." *Journal of Political Economy* 98 (October).

———. 1991. "Economic Growth in a Cross Section of Countries." *The Quarterly Journal of Economics* 106 (2)(May):407-502.

Blanchard, O. J. 1985. "Debt, Deficits, and Finite Horizons." *Journal of Political Economy* 93 (April):223-47.

De Long, J. B., and L. H. Summers. 1991. "Equipment Investment and Economic Growth." *Quarterly Journal of Economics* 106 (May).

Summers, R., and A. Heston. 1988. "A New Set of International Comparisons of Real Product and Price Levels." *The Review of Income and Wealth* 34 (March):1-25.

World Bank. 1987. *World Development Report 1987*. New York: Oxford University Press.

Part III

Agenda for Adjustment Lending in the 1990s

Roundtable Discussion:
Adjustment Strategies for the 1990s

Edmar L. Bacha, Gerald K. Helleiner, and Arnold C. Harberger

Edmar L. Bacha

My remarks lay out the main points on the development agenda for Latin America in the 1990s. The tasks in long-term economic policy-making in Latin America can be split into four main areas: role of the state; integration into the world economy; determinants of private investment; and alleviation of poverty. Following that discussion, I conclude with a brief review of some of the roles the World Bank could play in accomplishing this development agenda.

Since the 1930s, the state has been the leading economic actor in Latin America's development, and until the 1970s the number of functions and forms of its intervention in the region's economy increased continuously. Thereafter, the debt and hyper-staglation crises of the 1980s closed this chapter of state-led development. Although the Latin American governments of the 1990s may continue to absorb the same fraction of the region's gross domestic product (GDP), they will need to be more selective and performance-oriented in their interventions than in the past. A local and dynamic entrepreneurial class now exists in many countries; past prejudices against multinational firms are vanishing. The awareness that the state is not well-equipped to operate productive enterprises directly is growing, in tandem with the need to increase competition within the private sector.

Reform of the public sector is the number one development priority in the region. Two tasks are at hand. The first is fiscal reform, broadly understood to include the restructuring of domestic and foreign debt and elimination of rent-seeking entitlements such as early retirement plans, special pension funds, housing subsidies, inability to remove public sector employees, guaranteed access of state banks to central bank rediscounting and the impossibility of closing loss-making public sector enterprises. The purpose of the reform is to provide a new beginning for the state that is free of the debt overhangs of the past and that is characterized by an equilibrium between the liabilities of the state, both actual and contingent, and its assets. The second task is to elaborate constitutional rules and a performance-oriented regulatory framework for state intervention that would make repetition of the irresponsible deficit-spending behavior of the past more difficult.

The second task for long-term economic policy-making is integration of the region into the world economy. Along with state-led development, the days of inward-looking industrialization are gone. If an industry is worth protecting from imports, its exports are also worth promoting. Industrial policy has a role to play, but the protection of uncompetitive private sector monopolies is certainly not it. Besides the definition of a performance-oriented industrial policy, the countries in the region will also need to find a role for Latin American integration in this age of mega-economic blocs. While free trade is no panacea, it perhaps offers a good first approximation for the medium term: Latin American markets may provide a first stage in the direction of freer trade.

Another theme is private investment. Fiscal austerity pays off in the long run, but substantial time is required for stabilization to take hold and private confidence to become re-established, as the examples of Chile, Bolivia and Mexico demonstrate. The deflationary costs of stabilization policies need to be reduced by appropriate confidence-boosting economic measures, although this task is easier said than done. Traditional Keynesian pump-priming expansionism will not work. Protectionism is out of order. Subsidized long-term credit is not the answer.

What is left? A more liberal economic framework is certainly necessary, but historical experience shows that it is not sufficient to promote growth. New theories on growth are in their infancy, and the empirical investigations all show that private investment is a function of GDP growth,

which is the goal once private investment gets going. This listing should leave no doubt: a deeper understanding of the determinants of productive private investment is another important task for long-term economic policy-making in the region.

Last but not least, there is the alleviation of poverty. Cross-country comparisons of the distribution of income show quite clearly that the lot of the poor in Latin America could be substantially improved, at current per capita levels of income, without significant economic costs or negative effects on the rates of growth of GDP. Sufficient international experience on the alleviation of poverty has now been accumulated. Missing, however, is the political will to intervene in a pragmatic fashion, without the prejudices of the old left—which continues to believe that minimum wage legislation is the sole cure for poverty—and of the old right—which continues to believe that trickle-down is the only way out of poverty.

What is the role of the World Bank in this agenda? Many roles could be mentioned, but let me touch on only two points. Professor Arnold Harberger emphasized the Bank's role as a teaching institution: showing to countries what needs to be done in the light of recent advances in economic knowledge and international experience. I would agree with this suggestion as far as poverty alleviation is concerned, but I would suggest a more modest role—namely, that of a research institution—in the other three areas (efficiency of government and fiscal and monetary policies). We now have a broader professional consensus on development policies than in the past, but my impression is that we know more about the don'ts than the do's. For example, we know that

protectionism and financial repression are bad for growth, but purely liberal policies do not seem to be able to deliver rates of growth similar to those of the countries that followed active industrial and financial policies, such as Taiwan and Korea. Perhaps what is most needed is to find out how an active government policy succeeds in not falling prey to rent-seeking interests, either in the private sector or in the government bureaucracy. What seems to be required is a renewed political economy approach to economic policy-making, which the World Bank is particularly well-equipped to help develop.

Another point relates to adjustment lending. This financing started as a temporary balance-of-payments support measure. Now, perhaps, it should increasingly be viewed as a means to strengthen government finances in adjusting countries, or, more specifically, as a means to increase the credibility of local money and facilitate the access of adjusting countries' governments to the local and international capital markets. Credit for the public sector was a victim of the debt crisis, with the successive external debt restructurings and domestic debt defaults. International reserves, acquired with the help of World Bank adjustment loans, could be used by the governments of developing countries both to anchor domestic currencies credibly to the US dollar or other convertible currencies and to offer an international guarantee to facilitate the acceptance of medium-term government bonds in the local and international capital markets. These uses of adjustment loans could be an important part of the restructuring of government finances, which is the single most important task for the resumption of growth in Latin America.

Gerald K. Helleiner

I spoke on the panel that concluded the conference in 1989 on the first round of the World Bank's research on adjustment lending. At that time I tried to summarize, inevitably somewhat subjectively, some of the main conclusions drawn from that research. Having just reread that summary, I would not now change a word. Nevertheless, there has been significant value added from this second round of research on the Bank's adjustment lending. Let me try, again somewhat subjectively, to summarize what it is.

(1) Considerable further analysis has been conducted on the overall impact of World Bank adjustment lending, using more data and more sophisticated methodologies. The new evidence generates results broadly similar to the old ones, for example, that structural adjustment loans (SALs) are

associated with modest improvements in growth, rates of saving and export performance. Especially striking, once again, is the decline in the rates of investment associated with Bank adjustment lending. Although Bank authors argue that faster growth associated with lower investment implies increased investment efficiency, others have noted that increased capacity utilization—attributable, in part, to increased import capacity (which has been relatively deemphasized in the second round of research)—is no less a plausible explanation.

(2) New attention is being paid to the relative roles of private and public saving and investment in the overall performance of saving and investment. The importance of reductions in private investment is highlighted, but efforts to "explain" it in statistical terms have not been too successful; it is evidently not associated, for example, with the trade regime. The reduced relative role of foreign saving in the

financing of the reduced domestic investment has also not been clarified further. Generally, there is now a more nuanced approach to the "crowding out" or "crowding in" effects of government spending. In particular, the importance of public investment, especially in infrastructure and human capital, in the creation of incentives and opportunities for private investment, is recognized more clearly.

(3) Stability, policy credibility and sustained government effort receive major new attention. The reduction of private decision-makers' uncertainty is seen as of major importance to the success of adjustment programs. In this context, there is a new interest in critical thresholds. Debate continues as to how best to establish and maintain governmental credibility and how much pain must be inflicted (and borne) for these purposes.

(4) There is a new, heavy emphasis upon the paramount need for the early reduction of "high" rates of price inflation. Evidently the Bank and many of its authors have lost some of their earlier tolerance for inflation, provided only that the real exchange rates were not overly misaligned. This resurrection of traditional International Monetary Fund (IMF) verities has obvious implications for the sequencing of adjustment measures. However, it equally obviously requires greater precision as to what is meant by "high" inflation.

(5) The impact of adjustment programs upon poverty is receiving much more attention. The World Bank's *World Development Report 1990* (World Bank 1990) emphasized the need for labor-intensive growth and the provision of education and health services for the poor. Parallel points are being made with increasing frequency with reference to adjustment programs. It may be that policies for the relief of absolute poverty have at last entered into the so-called "Washington consensus" on appropriate policy reform. However, while the Bank now expresses its intention of improving its pro-poor policies, its practice is still inadequate. Relatively little effort has been made to monitor absolute poverty levels or to assess the implementation of anti-poverty policies or to build anti-policy objectives into the ex ante design of adjustment programs.

(6) New advice is being offered regarding the Bank's disbursement of adjustment loans. The authors argue that where policy reforms take a long time to implement and/or to have any positive effect, disbursements should be geared to the continuation of appropriate policy change. While this recommended "short-leash" approach may be defended on the basis of the incentives against policy slippage that it creates, it makes little sense in terms of broader adjustment objectives. If there are balance-of-payments problems associated with adjustment efforts, increased external finance should be made available; the amounts to be provided should relate to the objective need for quick-disbursing program support, not to fairly subjective assessments of whether programs of uncertain outcome in the longer run are being adhered to. Perhaps this recommendation is intended to

reduce the relative importance of adjustment or program lending. That is, in any case, what it will achieve.

Much more persuasive is the call for contingency financing—what used to be called "supplementary finance"—to permit adjustment programs to stay on track in the face of unexpected events such as a deterioration in the terms of trade. The new evidence that investment rates vary directly with the stability of overall output lends extra support to this advice.

In much of this new wisdom, as well as in much of the old, there is an emerging professional consensus on the subject of adjustment lending. Agreement is probably easiest when the professionals are all discussing the specific policies appropriate to a particular country at a particular time, rather than trading dubious generalizations that purport to straddle both space and time. Nevertheless, there is still room for doubt as to whether it is possible (borrowing Dick Cooper's approach at the conclusion of another conference in Washington about 10 years ago) to expect any four knowledgeable economists at this conference, if asked to prepare a specific adjustment program, to come up with broadly the same prescriptions.

Where are the areas of continuing disagreement or uncertainty?

(1) There does not seem to be agreement as to the universal productivity of the new general advice on the sequencing of reform: first, macroeconomic stabilization, especially in the realm of inflation; then liberalization (getting incentives right), addressing the most severe distortions first; and then increased investment and growth. On both political and economic grounds, these orderings might often sensibly be altered, as to some degree they have been in parts of Sub-Saharan Africa.

(2) There is still not full agreement on the nature and social costs of market "distortions" and the efficacy of liberalization. The relevance of the trade regime to adjustment remains unclear, particularly the roles of import liberalization and targeted incentives. The Bank's own research has still not yielded evidence of a correlation between trade policy and either investment rates or growth in total factor productivity. Similarly, the impact of liberalization of the interest rate seems highly uncertain, a matter for "judgment." It is now agreed that increases in the interest rate do not raise savings and, if overdone, can be harmful. The potential dangers of financial liberalization are sometimes seriously discussed in the Bank's research papers; at other times they are downplayed (sometimes both occur in the same paper). Ambivalence seems to characterize the new consensus in this sphere.

(3) There are different views on the potential role of incomes policy as against the "elimination of labor market rigidities and distortions." Trade-offs between labor earn-

ings and employment and, more broadly, the functioning of the labor markets during adjustment are not understood.

(4) Although there is now agreement on the critical importance of nationals' "ownership" of adjustment programs, major disagreements, probably inevitably, still surface on aspects of the political economy of policy change. Do the pressures of shocks and crises generate better policies, or do they lead to hurried and ill-considered responses? Is a sustained adjustment effort better engendered through step-by-step confidence-building or through sharp changes that show the policy-makers mean business?

(5) Doubt and disagreement persist as to the adequacy of external funding for adjustment and eventual growth, particularly in the case of low-income countries in Sub-Saharan Africa. In these meetings there has been a tendency to take net external resource flows as given. However, "one person's constraint is another's objective function." Does it make sense to strain over optimal policies if the possibilities for adjustment are tightly limited by a resource constraint that will throttle the best reform efforts? The importance of the debt overhang and what, if anything, to do about it are also likely to engender debate at the country level.

(6) Some confusion remains over the relative roles of the IMF and the World Bank in adjustment programs. Clearly there is overlap in the activities of these two institutions that makes it difficult to identify which deserves the credit (or blame) for what. Does it make sense to continue independent assessments of the impact of Bank adjustment lending while the Fund does correspondingly inappropriate evaluations of its own lending?

(7) Do different adjustment paths have different effects on environmental variables? It is striking that whereas not only the person in the street and the aid donors, but also the President of the World Bank, regularly proclaim their new concern for the environment, no one at this conference has uttered a word on the subject. In the context of the adjustment debate, this neglect may be seen by some as important and by others as unimportant. I suspect that a degree of uncertainty and disagreement also characterizes this area.

All in all, there is now a firm appreciation of the enormous variety of both initial country conditions and adjustment experience. The degree of "noise" in measured economic relationships, even those we thought we understood, has proven so great that there can now be no escaping country-specific analysis of adjustment possibilities.

Arnold C. Harberger

Everybody is talking about consensus, and let me start on the same subject. There is even more of a consensus at this table than it might seem. Even if consensus was missing on the items indicated by Gerry Helleiner, many of them are much more specific than the ones for which Vittorio Corbo suggested that consensus may be present. It is one thing to expect economists all to agree on whether there is overshooting when the interest rate is freed up, or on what should be the precise order in which the government sequences its moves, or what particular strategy the government should follow when (and if) it intervenes in the capital market. It is quite another thing to make a statement such as Corbo's in which he asserted that there is an emerging consensus on the direction in which the government should go, on whether the government sector or the market sector should get bigger or smaller, etc. Surely there is more of a consensus on this latter kind of issue than on detailed matters such as those mentioned above.

There is also a lot of consensus on issues related to efficiency in government, both past and present. Consensus seems much closer today on the roles of monetary and fiscal policies than it did 15 years ago. On poverty, again echoing Corbo, there has long been widespread agreement, which has grown stronger over the years, that human capital forma-tion is the most important, most profound, most fundamental and most long-run way of dealing with poverty. It can very appropriately be supplemented in the short and middle runs by policies that, much more than ever in the past, concentrate on the very poor. On these matters there is an emerging consensus, which I perceive even in some governments in Latin America.

One of the interesting sidelights of the emerging consensus is that privatization has come to be a good word to the point of often being regarded as an end in itself. One of the most surprising results has been that even people as generally market-oriented as myself are advising governments to move carefully, to go slowly and to think about the prices they are getting and alternate terms on which to achieve privatization. Governments should, in particular, try to have a salable asset before putting it up for sale.

Most economists would agree with the above remarks: that privatization is good; that there is room for the private sector to be expanded at the expense of the public sector; that activities should be transferred from the one sector to the other; and that, even in this process, care should be taken about many aspects and steps.

To a considerable degree the emerging consensus is a consensus of responsibility—of weighing the cost of the benefits from each option more carefully than has been done

in the recent past. I want also to emphasize the role of what I call reversibility, to which I now turn.

I recall a very important conference that I attended in Mexico toward the middle of Luis Echeverria's presidency. I pointed out at that conference that the share of total lending from the banking system that was going to the public sector had risen inside of three years from 30 percent to 70 percent. I then made the profound prediction that in the next three years it would not rise to 110 percent. However, the device of increasing public sector borrowing from the banking system is a time-honored way in which governments have in the past slopped along and gotten what they wanted, sort of on the cheap, without being aware of the cost of reversing their action. Think of what it will take for the next government to bring that fraction back from 70 percent to 30 percent. What effort, what sacrifice must that second government incur just to return the country to the same place it was at the beginning of the whole process.

Those struggles, those sacrifices, are at the core of what I mean when I speak of reversibility. The issue of reversibility is present in a great many other instances, not just in borrowing from the banking system. Not too long ago at a conference in Costa Rica, I described the process that had gone on there as "parking the deficit." They first parked their deficit in the foreign capital market; when that parking lot was full they parked the deficit in the domestic non-bank capital market. Then they parked it by increasing the fraction of banking system credit taken by the government—without being too inflationary in the process. Then they started parking it with the social security system. All these palliatives deal with the deficit in the short run. However, to get to a desirable long-run level of whatever it is—debt abroad, debt at home or the fraction of banking system credit going to the government—virtually all of these trends need to be reversed.

In each of these cases the costs of going back, of reversing any step, are a lot larger than the benefits obtained by getting into the problem in the first place. To get back to the initial starting point, the government would have to run a surplus that would match (or more than match, allowing for accumulated interest) every deficit that was run in the process of getting into the problem. All this effort would accomplish is to get the country back to the initial starting point—yet the task of running huge successive surpluses for many years is vast and daunting.

We are becoming increasingly aware of this ultimate truth. In the decade of the 1990s, in the decade ahead, there must be a greatly increased awareness of this fact. In the past decade we have seen how today's "solution" can so easily turn into tomorrow's problem. In the new decade we must act on this knowledge and avoid such easy ways out.

This admonition brings me to another aspect of what I call reversibility. For almost as long as I have been involved in the development business, the standard ethos has been to

regard going into debt as a solution. Debt has been looked on as a good thing if only the country can get away with it. The truth of the matter is very different. In fact, and in the real world, going into debt is something that entails risk and cost and should be approached with the greatest of caution. Ideally, it should be done to add to the country's productive resources, and in such a way that those productive resources will themselves pay the interest, and even the amortization, on this debt. The idea of debt as a solution is getting to be out of date. Perhaps we can call it a 7 percent solution, but it is a 93 percent problem. We need a more general recognition of this fact, and I hope we are headed there as we move into the decade of the 1990s.

Associated with all of these points is a changing attitude toward government. I do not know how real or pervasive this change is, but I certainly hope it is, and I would like to share this thought. We have lived through an era in which governments have responded to perceived political pressures, to the winds of the moment and so on. They take little innocuous-looking steps, such as increasing the country's debt abroad, as well as all the other things I listed above. When they do this sort of thing, nobody cares, nobody worries, no red flags go up. Yet these little steps carry hidden costs. These little steps cumulate over time until the cost of turning back their combined effect is extremely costly. The steps are individually and in combination much harder to reverse than they are to take, and overwhelmingly the costs associated with these steps are passed on to others—to successor governments, successor generations.

Which countries do not do these things, do not get themselves into trouble, do not pass their problems on to the future? One clear example is Switzerland. Somewhere along the line a Swiss-like attitude toward government going into debt would be extremely beneficial almost the world over. We should at least be aware that there are serious costs involved and that these costs are very likely to be paid by others. We also now know, from the bitter experience of the 1980s, that these costs can certainly be severe. Why, then, have we not taken them more seriously, most especially in the professional literature? The literature looks mainly at the flows of production, income and spending. Debt appears as a way of enabling a country to spend more than it currently produces and thus to solve a problem. Rarely does a paper or article go on to show the reverse situation—what happens when that debt is being repaid. I hope we are at the point of really wanting to avoid making the same mistakes again, even at the cost of a bit of mystique or irrationality being associated with it. To remain alert to the dangers of the simple innocuous-looking decisions that down the road lead to trouble, to avoid the steps that have one by one created the problems of the past decades, we have to force ourselves to treat each single step as if it were a serious transgression. We have to impose such a discipline on ourselves; we must force ourselves to recognize the likely hidden costs of steps that

we have in the past taken far too lightly and in far too cavalier a fashion.

I see a bit of this sort of recognition in the new governments that have recently taken office, particularly in Latin America (not because Latin America is special in this regard, but because it is there that I have been able to observe events closely enough to be able to make a judgment of this kind). A new attitude, a new recognition of costs, a new conservatism with respect to debt are definitely strong desiderata for the decade ahead. I hope that the signals I perceive are a positive augury for the future.

References

World Bank. 1990. *World Development Report 1990.* New York: Oxford University Press.

Distributors of World Bank Publications

ARGENTINA
Carlos Hirsch, SRL
Galeria Guemes
Florida 165, 4th Floor-Ofc. 453/465
1333 Buenos Aires

**AUSTRALIA, PAPUA NEW GUINEA,
FIJI, SOLOMON ISLANDS,
VANUATU, AND WESTERN SAMOA**
D.A. Books & Journals
648 Whitehorse Road
Mitcham 3132
Victoria

AUSTRIA
Gerold and Co.
Graben 31
A-1011 Wien

BAHRAIN
Bahrain Research and Consultancy
    Associates Ltd.
Esterad Building No. 42
Diplomatic Area
P.O. Box 2750
Manama Town 317

BANGLADESH
Micro Industries Development
    Assistance Society (MIDAS)
House 5, Road 16
Dhanmondi R/Area
Dhaka 1209

   Branch offices:
   156, Nur Ahmed Sarak
   Chittagong 4000

   76, K.D.A. Avenue
   Kulna

BELGIUM
Jean De Lannoy
Av. du Roi 202
1060 Brussels

CANADA
Le Diffuseur
C.P. 85, 1501B rue Ampère
Boucherville, Québec
J4B 5E6

CHINA
China Financial & Economic
    Publishing House
8, Da Fo Si Dong Jie
Beijing

COLOMBIA
Infoenlace Ltda.
Apartado Aereo 34270
Bogota D.E.

COTE D'IVOIRE
Centre d'Edition et de Diffusion
    Africaines (CEDA)
04 B.P. 541
Abidjan 04 Plateau

CYPRUS
MEMRB Information Services
P.O. Box 2098
Nicosia

DENMARK
SamfundsLitteratur
Rosenoerns Allé 11
DK-1970 Frederiksberg C

DOMINICAN REPUBLIC
Editora Taller, C. por A.
Restauración e Isabel la Católica 309
Apartado Postal 2190
Santo Domingo

EGYPT, ARAB REPUBLIC OF
Al Ahram
Al Galaa Street
Cairo

The Middle East Observer
41, Sherif Street
Cairo

EL SALVADOR
Fusades
Avenida Manuel Enrique Araujo #3530
Edificio SISA, 1er. Piso
San Salvador

FINLAND
Akateeminen Kirjakauppa
P.O. Box 128
Helsinki 10
SF-00101

FRANCE
World Bank Publications
66, avenue d'Iéna
75116 Paris

GERMANY
UNO-Verlag
Poppelsdorfer Allee 55
D-5300 Bonn 1

GREECE
KEME
24, Ippodamou Street Platia Plastiras
Athens-11635

GUATEMALA
Librerias Piedra Santa
5a. Calle 7-55
Zona 1
Guatemala City

HONG KONG, MACAO
Asia 2000 Ltd.
48-48 Wyndham Street
Winning Centre
2nd Floor
Central Hong Kong

INDIA
Allied Publishers Private Ltd.
751 Mount Road
Madras - 600 002

   Branch offices:
   15 J.N. Heredia Marg
   Ballard Estate
   Bombay - 400 038

   13/14 Asaf Ali Road
   New Delhi - 110 002

   17 Chittaranjan Avenue
   Calcutta - 700 072

   Jayadeva Hostel Building
   5th Main Road Gandhinagar
   Bangalore - 560 009

   3-5-1129 Kachiguda Cross Road
   Hyderabad - 500 027

   Prarthana Flats, 2nd Floor
   Near Thakore Baug, Navrangpura
   Ahmedabad - 380 009

   Patiala House
   16-A Ashok Marg
   Lucknow - 226 001

INDONESIA
Pt. Indira Limited
Jl. Sam Ratulangi 37
P.O. Box 181
Jakarta Pusat

ISRAEL
Yozmot Literature Ltd.
P.O. Box 56055
Tel Aviv 61560
Israel

ITALY
Licosa Commissionaria Sansoni SPA
Via Duca Di Calabria, 1/1
Casella Postale 552
50125 Florence

JAPAN
Eastern Book Service
37-3, Hongo 3-Chome, Bunkyo-ku 113
Tokyo

KENYA
Africa Book Service (E.A.) Ltd.
P.O. Box 45245
Nairobi

KOREA, REPUBLIC OF
Pan Korea Book Corporation
P.O. Box 101, Kwangwhamun
Seoul

KUWAIT
MEMRB Information Services
P.O. Box 5465

MALAYSIA
University of Malaya Cooperative
    Bookshop, Limited
P.O. Box 1127, Jalan Pantai Baru
Kuala Lumpur

MEXICO
INFOTEC
Apartado Postal 22-860
14060 Tlalpan, Mexico D.F.

MOROCCO
Société d'Etudes Marketing Marocaine
12 rue Mozart, Bd. d'Anfa
Casablanca

NETHERLANDS
De Lindeboom/InOr-Publikaties
P.O. Box 202
7480 AE Haaksbergen

NEW ZEALAND
Hills Library and Information Service
Private Bag
New Market
Auckland

NIGERIA
University Press Limited
Three Crowns Building Jericho
Private Mail Bag 5095
Ibadan

NORWAY
Narvesen Information Center
Book Department
P.O. Box 6125 Etterstad
N-0602 Oslo 6

OMAN
MEMRB Information Services
P.O. Box 1613, Seeb Airport
Muscat

PAKISTAN
Mirza Book Agency
65, Shahrah-e-Quaid-e-Azam
P.O. Box No. 729
Lahore 3

PERU
Editorial Desarrollo SA
Apartado 3824
Lima

PHILIPPINES
International Book Center
Fifth Floor, Filipinas Life Building
Ayala Avenue, Makati
Metro Manila

PORTUGAL
Livraria Portugal
Rua Do Carmo 70-74
1200 Lisbon

SAUDI ARABIA, QATAR
Jarir Book Store
P.O. Box 3196
Riyadh 11471

MEMRB Information Services
   Branch offices:
   Al Alsa Street
   Al Dahna Center
   First Floor
   P.O. Box 7188
   Riyadh

   Haji Abdullah Alireza Building
   King Khaled Street
   P.O. Box 3969
   Damman

   33, Mohammed Hassan Awad Street
   P.O. Box 5978
   Jeddah

**SINGAPORE, TAIWAN,
MYANMAR,BRUNEI**
Information Publications
   Private, Ltd.

02-06 1st Fl., Pei-Fu Industrial
   Bldg.
24 New Industrial Road
Singapore 1953

SOUTH AFRICA, BOTSWANA
For single titles:
Oxford University Press
    Southern Africa
P.O. Box 1141
Cape Town 8000

For subscription orders:
International Subscription Service
P.O. Box 41095
Craighall
Johannesburg 2024

SPAIN
Mundi-Prensa Libros, S.A.
Castello 37
28001 Madrid

Librería Internacional AEDOS
Consell de Cent, 391
08009 Barcelona

SRI LANKA AND THE MALDIVES
Lake House Bookshop
P.O. Box 244
100, Sir Chittampalam A.
    Gardiner Mawatha
Colombo 2

SWEDEN
For single titles:
Fritzes Fackboksforetaget
Regeringsgatan 12, Box 16356
S-103 27 Stockholm

For subscription orders:
Wennergren-Williams AB
Box 30004
S-104 25 Stockholm

SWITZERLAND
For single titles:
Librairie Payot
6, rue Grenus
Case postale 381
CH 1211 Geneva 11

For subscription orders:
Librairie Payot
Service des Abonnements
Case postale 3312
CH 1002 Lausanne

TANZANIA
Oxford University Press
P.O. Box 5299
Dar es Salaam

THAILAND
Central Department Store
306 Silom Road
Bangkok

**TRINIDAD & TOBAGO, ANTIGUA
BARBUDA, BARBADOS,
DOMINICA, GRENADA, GUYANA,
JAMAICA, MONTSERRAT, ST.
KITTS & NEVIS, ST. LUCIA,
ST. VINCENT & GRENADINES**
Systematics Studies Unit
#9 Watts Street
Curepe
Trinidad, West Indies

UNITED ARAB EMIRATES
MEMRB Gulf Co.
P.O. Box 6097
Sharjah

UNITED KINGDOM
Microinfo Ltd.
P.O. Box 3
Alton, Hampshire GU34 2PG
England

VENEZUELA
Libreria del Este
Aptdo. 60.337
Caracas 1060-A

THE WORLD BANK

The World Bank has been supporting structural adjustment in developing countries since the late 1940s. At first most loans were made for infrastructure projects. In the 1980s, however, many of these countries faced economic difficulties that highlighted the need for major policy reform. The World Bank's primary response then was adjustment lending—quick-disbursing loans and credits intended to support policy changes that would promote economic stabilization and safeguard vulnerable groups. By the end of the decade adjustment loans accounted for roughly one-fourth of the Bank's lending commitments and a much larger share of the net lending and policy dialogue with most developing countries.

The Bank periodically reviews its adjustment lending to determine if the programs it supports have had the desired effects. This volume emerged from a symposium that was organized to present and discuss the background research for one such review. Experts from academia and the development community brought to the symposium a wide range of opinions on the issues—some had even been critical of the Bank's adjustment lending policies.

The ten chapters in this volume, each presenting text and commentary, are grouped into three parts. Part I examines how adjustment programs have affected growth, trade, and poverty in the medium term and what experience has taught about designing these programs. Part II deals with the macroeconomic foundations for sustainable growth—low inflation and increased investment, saving, and efficiency—which underlay successful adjustment. Part III brings together the issues to suggest adjustment strategies for the 1990s.

At the time this symposium was held, Vittorio Corbo and Steven B. Webb were, respectively, division chief and senior economist of the Macroeconomic Adjustment and Growth Division of the Country Economics Department at the World Bank, and Stanley Fischer was vice president of Development Economics and chief economist of the Bank.

OF RELATED INTEREST FROM THE WORLD BANK

Adjustment with Growth in Latin America
Alberto Eguren

Best Practices in Trade Policy Reform
Vinod Thomas, John Nash, and associates

How Adjustment Programs Can Help the Poor: The World Bank's Experience
Helena Ribe, Soniya Carvalho, Robert Liebenthal, Peter Nicholas, and Elaine Zuckerman

Industrial Adjustment in Sub-Saharan Africa
Gerald M. Meier and William F. Steel, editors

Industrial Restructuring: Policy and Practice
Ira W. Lieberman

Making Adjustment Work for the Poor: A Framework for Policy Reform in Africa
The World Bank

Poverty, Adjustment, and Growth in Africa
Ismail Serageldin

Public Sector Management Issues in Structural Adjustment Lending
Barbara Nunberg

Reforming Central and Eastern European Economies: Initial Results and Challenges
Vittorio Corbo, Fabrizio Coricelli, and Jan Bossak, editors

Structural Adjustment in Sub-Saharan Africa
Cadman Atta Mills