

DEVELOPMENT MACROECONOMICS

Introduction and Overview

ATTENTION to short-run macroeconomic issues in the developing world emerged largely in the context of the monetarist–structuralist debate about the sources of inflation in Latin America during the late 1950s and 1960s.¹ Whereas the early literature in this area was essentially nontechnical, a growing analytical literature has developed since the early 1970s to address a succession of macroeconomic woes that have afflicted developing countries. This literature has reached a level of rigor and sophistication comparable to that which characterizes industrial-country macroeconomics. Much of it, however, is written at an advanced level and is scattered over a wide range of professional economic journals.

Partly as a result of this, the existing teaching material on developing economies has largely ignored these recent developments in macroeconomic analysis. Consequently, existing texts in development economics and macroeconomics do not meet the needs of those concerned with macroeconomic issues in developing nations. Economic growth, rather than short-run macroeconomic policy, remains the dominant concern in existing texts on development economics. Attention is often concentrated on the contribution of aggregate supply to economic growth, in terms of either the productive use of unlimited supply of labor or the removal of particular supply constraints, such as a shortage of domestic saving or foreign exchange.² Similarly, in standard textbooks in macroeconomics (or open-economy macroeconomics) the analysis is generally conducted in terms of advanced, industrialized economies. When issues relevant to developing countries are raised, there is often no attempt to adapt the theoretical framework to the particular conditions and structural characteristics of these countries.³ A series of influential books by Lance Taylor (1979, 1983, 1991) does attempt to provide a systematic analytical treatment of developing-country macroeconomic issues. However, Taylor is more concerned in these books with presenting the “new

¹ Many of the issues that were raised at the time are still the focus of considerable interest among economists and are discussed in various parts of this book.

² For instance, two of the most popular textbooks in the field of economic development, those of Gillis et al. (1992) and Todaro (1994), devote only a few pages to short-run macroeconomic issues.

³ To a large extent, this is also the case for recent books attempting to focus on development macroeconomics, such as Cook and Kirkpatrick (1990) and Ross (1991). Although some of these books provide ample factual information on developing economies, from an analytical point of view they hardly go beyond simple open-economy models developed for an industrial-country setting.

Structuralist” approach to macroeconomics as a challenge to the “orthodox” approach, rather than presenting a balanced overview of the field. Consequently, many of the areas in which “orthodox” thinking has provided much insight (and, ironically, even strengthened new structuralist arguments in some cases) tend to be ignored in these books, and the fundamental complementarities that often exist between rival schools of thought are lost.

Development Macroeconomics, 2nd edition, provides a more balanced approach to the macroeconomics of developing nations. It presents a coherent, rigorous, and comprehensive overview of the analytical literature in this area. It reviews attempts to formulate and adapt standard macroeconomic analysis to incorporate particular features and conditions found in developing economies, and uses a variety of models to examine macroeconomic policy issues of current concern to these countries. Empirical evidence on behavioral assumptions as well as on the effects of macroeconomic policies in developing countries is examined systematically, in light of the predictions of the analytical models. The book’s level of rigor makes it suitable for teaching graduate students in development economics, macroeconomics, and international economics, or advanced undergraduates with a solid background in standard macroeconomics and international economics. It should also be of interest to policymakers (and their advisors) in developing countries. The book provides extensive references to the literature, with the objective of making this material more easily identifiable to students and researchers, and eventually of helping to establish development macroeconomics as a coherent and legitimate subfield of development economics and macroeconomics.

1 Overview of the Book

We set the stage by attempting to define the scope and objectives of development macroeconomics. Traditional approaches to development macroeconomics (as exemplified by the monetarist–structuralist debate of the 1950s and 1960s) are reviewed in Chapter 1. Our discussion emphasizes the need to take structural factors systematically into account in macroeconomic analysis. The chapter goes on to describe the structural features that, in our view, distinguish most developing countries from the textbook industrial-country model. Among the distinctive aspects of development macroeconomics are the usefulness of a three-good (exportables, importables, and nontradables) disaggregation of production and the roles of financial repression, informal markets, public sector

production, imported intermediate goods, working capital, and labor market segmentation.

The rest of the book is organized into five parts. The first part focuses on macroeconomic relationships and differences in market structure between industrial and developing nations. Chapter 2 focuses on the accounting framework and some key aspects of macroeconomic modeling for developing countries. Essentially, macroeconomic modeling consists of giving economic content to a set of aggregate accounting relationships by adding behavioral equations and equilibrium conditions. The accounting relationships that are relevant for a particular case depend on the structure of the economy. Thus, this chapter describes a “benchmark” accounting framework that can be adapted for specific uses later in the book. Next the chapter turns to particular modeling issues, the first of which involves alternative choices of commodity disaggregation. The particular role played by the structural features of the labor market and the degree of development of the financial system are also reviewed.

Chapter 3 focuses on behavioral functions, exploring in particular how the specification of standard macroeconomic functions must be altered to reflect structural features that are either specific to or more pronounced in the developing world. This includes liquidity constraints in aggregate consumption; credit and foreign exchange rationing as well as debt overhang effects on production and private investment; uncertainty and irreversibility effects on investment decisions; and the effects of financial repression, currency substitution, and informal financial markets on money demand. In each case we present a critical overview of the recent empirical and analytical work.

The second part of the book focuses on fiscal, monetary, and exchange-rate policies in developing countries. It begins, in Chapter 4, by documenting a wide range of regularities in macroeconomic fluctuations for a large group of developing countries. The data examined cover a wide range of variables and include industrial output, prices, wages, various monetary aggregates, domestic private sector credit, fiscal variables, exchange rates, and trade variables. The relationship between economic fluctuations in these countries and two key indicators that proxy for economic activity in industrial countries—an index of industrial country output and a measure of the world real interest rate—are also discussed. Among the findings are that output volatility varies substantially across developing countries, but is on average much higher than the level typically observed in industrial countries. The results also suggest that supply-side shocks play a predominant role in driving business cycles in developing countries.

Chapter 5 examines the nature and implications of fiscal rigidities and the effect of fiscal deficits on a variety of macroeconomic variables. An

inadequate tax base and administrative difficulties in tax collection are key macroeconomic problems in the developing world and typically lead to inefficient systems of taxation in which high tax rates are levied on a narrow base. In addition, these structural features, coupled with political and other constraints on the level of government expenditures, result in heavy reliance on revenue from financial repression and multiple-currency practices, on the inflation tax, and on excessive debt financing, both external and (less familiarly) domestic. Actual or prospective fiscal insolvency has been at the heart of many macroeconomic problems in such countries, such as debt crises, capital flight, excessive domestic real interest rates, and hyperinflation. The chapter presents an overview of fiscal issues, summarizing key empirical facts and drawing on the analytical relationships among the various macroeconomic problems described above and fiscal rigidities.

Financial repression is a central macroeconomic phenomenon in many developing countries. Yet the theory of short-run macroeconomic management—as opposed to that of efficiency and growth issues—under financial repression is not well developed. In Chapter 6 we analyze the tools of monetary policy and the monetary transmission mechanism under financial repression in the context of an economy that is at least semi-open financially. We present empirical evidence on financial openness in developing countries, on government revenue from financial repression, and on the effects of financial repression on saving, investment, the degree of capital mobility, and the extent of capital flight. Alternative analytical approaches to modeling informal credit and foreign exchange markets at the macroeconomic level are also discussed, with an emphasis on the role of portfolio factors and expectations in the determination of informal interest rates and parallel exchange rates in these models. The last part of the chapter examines how informal financial markets affect the dynamic response of the economy to various types of macroeconomic policies. The issue is important because such markets are forward-looking and will thus bring to the present the effects of anticipated future policy changes. Thus, the consequences of credibility—or its absence—will often be transmitted through such markets in developing countries. A medium-size general equilibrium simulation model with both informal credit and foreign currency markets is also used to study the effects of alternative policy shocks.

Chapters 7 and 8 discuss various issues related to exchange rate management in developing countries. The primary message of Chapter 7 is that exchange-rate systems in the developing world differ from those in industrial countries. Fixed official rates have been much more prevalent, but these have often been accompanied by foreign exchange rationing

and the emergence of parallel markets. Both of these phenomena have profound macroeconomic implications. The chapter also emphasizes the effect of credibility—and the lack thereof—on inflation under a fixed exchange-rate regime. In addition, the management of the official exchange rate raises a number of important macroeconomic issues, such as the possibility that devaluation may have contractionary effects on output or that targeting the real exchange rate may destabilize the price level. Chapter 8 provides an extensive review of the analytical issues involved in these controversies, as well as an overview of the empirical literature.

As discussed in Chapter 2, the analysis of labor markets in development economics has focused traditionally on issues such as the determinants of rural to urban migration, the growth of the urban labor force and the associated rise in urban unemployment, and the effects of education on levels of earnings. The role that the structure of labor markets may play in determining the long-run effects of trade reforms and structural adjustment policies has also been long recognized. In the past few years, however, there has been much interest in the role of labor markets in the context of short-run macroeconomic adjustment in developing countries. Chapter 9 examines the role of labor market segmentation and sectoral wage rigidity in the transmission of macroeconomic policy shocks.

The third part of the book focuses more closely on short-run stabilization issues in light of the features of developing economies described previously. Because high inflation has been the central problem confronting many well-known stabilization episodes in the developing world, we begin Chapter 10 by reviewing attempts at stabilizing high inflation in developing countries. We classify stabilization attempts into the categories of money-based and exchange-rate-based programs, and we draw on the voluminous existing literature to summarize experience with alternative approaches to stabilization, including the literature on “heterodox” programs. Whereas Chapter 9 is mainly descriptive in nature, Chapters 11 and 12 are mainly analytical. Chapter 11 presents alternative models of the inflationary process, focusing on differences between “orthodox” and “new structuralist” approaches, and examines the macroeconomic dynamics associated with monetary and exchange-rate policy rules in a context where international capital mobility is imperfect. Chapter 12 then discusses three important sets of issues that have arisen in the context of exchange-rate-based disinflation programs (the behavior of output, real interest rates, and real wages) and presents an extensive discussion of the role of credibility factors in disinflation programs. We examine, in particular, several alternative proposals to enhance the credibility of stabilization plans.

Chapter 13 provides a critical examination of the analytical foundations of some empirical models of stabilization policy, and the relationship between stabilization and medium-term growth. The first part focuses on the two approaches to stabilization and growth developed at the International Monetary Fund and the World Bank. Three-gap models, computable general equilibrium models, and conventional “Cowles Foundation” econometric models of developing countries are then reviewed. A key result of our discussion is that none of the modeling approaches that are widely used in developing countries is at present able to adequately address the complex dynamic interactions between stabilization and growth.

Part 4 of the book focuses on external debt, capital flows, and currency crises. Chapter 14 concentrates on the growth problems experienced by the heavily indebted developing nations during the 1980s, particularly on the relationship between the debt overhang, investment, and growth. As in previous chapters, the approach is both analytical and empirical. First we document the growth and investment experience (treating private and public investment separately) of these countries during the 1980s. We then consider analytical relationships among debt overhang, debt service, investment, and growth. Finally, we evaluate the existing empirical evidence on these relationships.

The early 1990s have witnessed a large increase in capital inflows to the developing world. Chapter 15 examines the nature of the new capital inflows, and reviews both the macroeconomic challenges that they raise and the policy responses undertaken by the recipient countries. It begins by providing an overview of the magnitude and composition of the new capital inflows, emphasizing the contrast with the capital movements that preceded the debt crisis. Next, it looks at the various explanations offered for the resurgence of capital flows into developing countries. It then examines the policy issues posed by the inflows and countries’ policy responses and performance.

An issue that has dominated the policy agenda since the surge in capital inflows of the early 1990s is the vulnerability of the recipient countries to sudden capital flow reversals and their potential to generate currency crises. These issues are discussed in Chapter 16. The first part of the chapter presents the “conventional” model of speculative attacks and currency crises, which emphasizes the role of inconsistencies between fiscal, credit, and exchange-rate policies for the viability of a fixed exchange-rate regime. After considering various extensions of the conventional model, the “new” theories of currency crises, which emphasize the role of policy trade-offs and self-fulfilling expectations are discussed. The last part of the chapter reviews the evidence on currency crises that

occurred during the 1980s and most recently in Mexico (December 1994) and Thailand (July 1997)—the latter triggering a full-blown (and still unfolding at the time of writing) financial crisis in Asia.

Part 5 of the book focuses on medium-term issues in development macroeconomics and the political economy of adjustment. Growth and its determinants are considered in Chapter 17. The chapter begins by providing a brief overview of the growth experience in the developing world and an examination of the role of traditional neoclassical theories of growth in explaining cross-country growth differences. The discussion is then extended to consider alternative channels for long-run growth—in particular, the roles of human capital and economies of scale, as emphasized in the new, endogenous growth theories. The importance of macroeconomic and financial factors in the growth process is also examined in detail.

The fiscal, financial, and exchange-rate issues discussed in the first and second parts of the book have interacted to result in a heavily repressed and controlled macroeconomic environment in many developing countries. Yet the severe macroeconomic crises that afflicted many of these nations in the 1980s, together with the successful examples of liberalizing economies in East Asia, unleashed a wave of trade and financial reforms almost everywhere in the early 1990s. Chapter 18 documents the evidence on trade, financial liberalization and macroeconomic performance, and discusses problems of short-run macroeconomic management during the liberalization process.

Chapter 19 focuses on the role of political factors in the adoption and abandonment of stabilization and structural adjustment programs in developing countries. It summarizes the major findings of existing research and discusses in particular the effects of the presidential electoral cycle on the pattern of public spending in Colombia, Costa Rica, and Venezuela. It also provides an analytical framework for examining the link between exchange-rate policy and electoral cycles—an issue that has not received much attention but may prove particularly relevant for some developing countries.

A key problem confronting recent programs of liberalization and structural change in developing countries is the relationship between structural reforms and stabilization policies. In particular, a central preoccupation has been the question of whether structural changes need to be preceded by macroeconomic stabilization or whether the two can proceed concurrently. In addition, the proper sequencing of the liberalization and reform measures themselves has been the subject of renewed controversy. A detailed account of the debate in this area is provided in Chapter 20, integrating analytical arguments and empirical

evidence on alternative sequencing options and the optimal speed of reform.

2 Some Methodological Issues

Our attempt to provide coverage of both theory and policy at an accessible level has inevitably involved simplification of what are sometimes complex and controversial issues. As a result of sacrificing generality in the interest of clarity and analytical convenience, the conclusions may sometimes appear as less compelling than they would otherwise be. Proofs of complicated results are presented in some important cases; in other cases the general properties of relevant models are described and appropriate references to the literature are provided. The mathematical background required for this book includes standard algebra, differential equation systems, and basic dynamic optimization techniques.

Many of the models developed in the book are not derived from “first principles,” but are included because they have proved useful in understanding some key macroeconomic issues. As is well known, ad hoc macroeconomic models can be criticized on a number of grounds. First, such models yield results that may be sensitive to arbitrary assumptions about private sector behavior. Second, they are susceptible to the Lucas critique, according to which decision rules should be policy-invariant (Lucas, 1976). Third, without an explicit description of the preferences of different categories of agents and the budget constraints that they face, such models are strictly speaking unsuitable for making welfare comparisons. Fourth, they often ignore intertemporal restrictions implied by transversality conditions, that is, appropriate restrictions on the solution path associated with the optimization process. In contrast, models in which individual behavior is derived from an explicit intertemporal optimization problem serve a variety of purposes. First, optimizing models are suggestive of assumptions under which aggregate behavioral relations often postulated are consistent with individual maximizing behavior. Second, because they are built up on the basis of preferences that are invariant with respect to policy change, they provide vehicles for policy analysis that are less vulnerable to the Lucas critique. Third, they provide a natural setting in which welfare consequences of macroeconomic policies can be assessed.

However, optimizing models with “representative agents” are themselves subject to a number of criticisms. Heterogeneity and aggregation issues are often avoided in these models, leading in some circumstances to misleading results. Macroeconomic models based on “representative” firms and consumers, for instance, cannot adequately address issues that

arise from imperfect information, where heterogeneity is crucial.⁴ Money is often introduced into these optimizing models in rather ad hoc ways, so their immunity to the Lucas critique is not complete. Finally, the results and insights derived from ad hoc models can often be shown to carry through in more complex, optimizing models. Our overall strategy has therefore been to eschew, wherever possible, attempts to recast the existing developing-country macroeconomic literature in an optimizing framework, thereby avoiding overly complicated mathematical models in favor of simpler models with clear policy implications. In our analytical discussion of disinflation policies, however, we introduce a series of models with behavioral functions explicitly derived from an optimizing framework, thus showing how this type of analysis can be fruitfully applied to the case of developing countries.

In this context, an important methodological issue is the treatment of money. The very existence of money remains a vexing question in monetary economics, and it is not our purpose to get involved in this debate. Rather, in the models examined here, various “operational” assumptions are used to introduce money, in line with much of the recent literature in open-economy macroeconomics. In one approach that has been followed recently, money is introduced directly as an argument in the utility function, because agents are assumed to derive utility from holding cash balances in the same way that they derive utility from consuming real goods. A second approach views money as being necessary for transactions and held before purchases of consumption goods takes place; this leads to the popular “cash-in-advance” constraint (see Stockman, 1989). A third approach is to view money as facilitating transactions by reducing shopping time and thus acting as a substitute for leisure. This leads to the specification of a “transactions technology” directly in the private agents’ budget constraint. Our preference, based largely on tractability, is to adopt the money-in-the-utility-function approach when using optimizing models because of the restrictive implications of the cash-in-advance constraint (it imposes, in particular, a zero-interest-rate elasticity of money demand). There are conditions under which choosing a particular operational formulation matters little (Feenstra, 1985), although, in general, alternative assumptions about the function of money do affect the predictions of macroeconomic models.

Despite our efforts, we have been unable to ensure that the notation used in the book is uniform and consistent. The same symbol sometimes

⁴ The recent literature in macroeconomics has recognized the shortcomings of this approach and the need to introduce two or more kinds of agents, such as liquidity-constrained versus non-liquidity-constrained agents. See Kirman (1992), who argues that representative-agent models provide only “pseudo micro-foundations” to macroeconomic behavioral equations; Greenwald and Stiglitz (1987); and Stiglitz (1992).

carries different meanings. However, differences in notation never occur within a single chapter, and thus there should be little possibility of confusion. Throughout the book, the derivative of a function of one variable is denoted with a prime, while (partial) derivatives of a function with several variables are indicated with subscripts. Finally, the derivative of a variable with respect to time is denoted by a dot over the variable.