

## Introduction and Overview

**D**eveloping and transition economies—including those, like South Korea, which are now classified as developed—now account for more than half of world output (evaluated at purchasing power parity exchange rates), and the great majority of the countries monitored by the International Monetary Fund belong to the developing world. Thus, not only does most of the world’s production take place in developing countries, but it is also true that country-specific macroeconomic policy formulation is usually carried out in a developing-country context. Despite this, much of modern macroeconomics has been developed to address circumstances and issues that arise in the context of industrial nations. The extent to which the analytical tools and models appropriate for the analysis of industrial-country macroeconomic problems are able to offer guidance for the formulation and conduct of macroeconomic policy in developing nations is thus an important issue for economists and policymakers alike.

### **1** Scope of Development Macroeconomics

The title of this book suggests that there is something intrinsically different about macroeconomics in developing nations. If the standard textbook treatment of macroeconomics developed for industrial countries were adequate to deal with macroeconomic phenomena in the developing world, there would be little justification for “development” macroeconomics. The title also suggests that macroeconomic phenomena in individual developing countries are sufficiently similar that it is meaningful to speak of a “development macroeconomics” rather than the macroeconomics of, say, Brazil, Cameroon, or Nepal. We are aware that both implications are problematic: many economists would subscribe to the notion that the standard tools and models of macroeconomics can be used in developing nations, and others would argue that Brazil, Cameroon, and Nepal have so little in common that the very notion of a “development” macroeconomics lacks meaning.

These views are sufficiently compelling that the burden of proof falls on us. The view that development macroeconomics is distinctive may sound suspiciously like an old and discredited claim from the 1960s that modern neoclassical (micro)

economics is not relevant to developing countries, because these countries are somehow “different” in unspecified ways or because these “traditional” societies are populated by nonoptimizing—and nonrational—economic agents. The perspective adopted in this book should not be confused with that view. We do not believe that economic agents in developing countries behave differently from those in industrial economies in ways that are inconsistent with the rational optimizing principles of neoclassical microeconomics: rather, we believe that they behave similarly to their industrial-country counterparts, but operate in a different environment. Our perspective is that the standard analytical tools of modern macroeconomics are indeed of as much relevance to developing countries as they are to industrial countries, but that different models are needed to analyze familiar issues.

This is so because “structural” differences between developing and industrial nations make many popular industrial-country models less than ideally suited to the analysis of developing-country macroeconomic phenomena. The word “structural” is in quotes because we do not want to suggest that the characteristics that we have in mind are unchanging and not amenable to reform. But they are given at a moment in time, and thus have to be taken into account by macroeconomists who focus on such countries. These differences in macroeconomic environment can be identified explicitly.<sup>1</sup> Moreover, the structural features that distinguish developing from industrial economies are sufficiently widespread throughout the developing world that it is indeed meaningful to speak of a distinct family of “development” macroeconomic models. The task of development macroeconomics is to uncover the implications of these differences in macroeconomic structure for macroeconomic behavior and policy.

Having said this, we would not wish to overstate our case. Good macroeconomics in any environment takes into account the institutional framework in which an economy operates. Economists who work mainly with high-income countries are familiar with the implications that different wage-setting mechanisms, budgetary institutions, exchange-rate and monetary policy regimes, as well as financial sector structures, can have for macroeconomic analysis. Our claim is simply that there are systematic differences in phenomena of these types between industrial and developing countries, and that there are enough similarities regarding such phenomena among developing countries themselves that it is useful to attempt to provide a unified treatment of macroeconomic issues in such countries.

## 2 Some Special Topics

In addition to differences in structure, a number of specific macroeconomic issues that have concerned economists and policymakers in developing nations have not

---

<sup>1</sup> Among the distinctive aspects of development macroeconomics are the roles of terms of trade shocks (implying the relevance of a three-good model), imported capital and intermediate goods, partial financial openness, informal credit markets, public sector production, working capital, labor market segmentation, income inequality, instability of policy regimes, and volatility.

been of similar importance in the industrial world. Again, these issues have not been specific to single countries, but have come up in different developing nations at various times, and have therefore been of widespread interest in the developing world. In short, not only the nature of the models used, but also the purposes to which they have been applied, distinguish macroeconomics in developing countries from that in industrial countries.

- Stabilization of High Inflation

High inflation has been more common in the developing world than in the industrial world over the past three decades. The developing world has also witnessed several alternative approaches to price-level stabilization, ranging from orthodox money-based programs relying on tight fiscal and monetary policies and exchange-rate policy geared to external balance, to “heterodox” programs based on tight aggregate demand policies supplemented by an exchange-rate freeze as well as some form of wage and price controls. The evaluation of this experience and its lessons for future stabilization efforts in the developing world and elsewhere have been important topics of research.

- Inflation Targeting and Monetary Policy Regimes

Since the 1990s, many countries—both high-income and developing—have begun to conduct monetary policies by managing short-term interest rates so as to hit a publicly announced inflation target. The design and implementation of inflation targeting regimes are at the forefront of the policy agenda in many developing countries at present, where recurrent terms of trade shocks, exchange-rate management, and uncertainties about monetary transmission pose special challenges to the implementation of such regimes.

- Exchange-Rate Management

The vast majority of high-income countries either maintain floating exchange rates or belong to a monetary union. Floating exchange rates and monetary unions also exist in developing countries, but many such countries continue to actively manage their exchange rates in pursuit of price stability or enhanced external competitiveness. The issues of how to map specific country circumstances onto an optimal exchange-rate regime, and how to operate a managed exchange rate, continue to figure prominently in the policy agenda for developing countries.

- Benefits and Costs of Currency Unions

In recent years, there has been growing interest in developing countries in forming currency unions. Developing-country currency unions already exist

in West Africa and the Caribbean, and have been discussed in the context of MERCOSUR (a trade arrangement in Latin America), of the Chiang Mai initiative in Southeast Asia, and the East African Community (EAC). The benefits and costs of forming currency unions are thus very much on the developing-country macroeconomic policy agenda.<sup>2</sup>

- Fiscal Rules and the Procyclicality of Fiscal Policy

There has been much debate in recent years on whether explicit fiscal rules may help to achieve and maintain fiscal discipline. Like inflation targeting, such rules have been used in high-income and developing countries alike. However, they may have an especially important role to play in developing countries due to the higher frequency of sovereign debt crises and the pronounced procyclicality of fiscal policy in such countries.

- Managing Capital Flows

Large capital flows—in the form of both inflows and outflows—have severely complicated macroeconomic management among developing countries both in the early 2000s and in the wake of the GFC. The causes of inflows and outflows, their welfare implications, and appropriate policy responses have been the subject of much recent attention in the developing-country literature.

- Financial Crises

Although currency crises have afflicted both industrial and developing countries as capital mobility has increased, these events have been both more frequent and more severe in the latter group of countries. This issue remains at the forefront of the research agenda in development macroeconomics. The roles of self-fulfilling expectations and policymakers' preferences, the links among currency, banking, and sovereign debt crises, and the predictive content of various economic indicators, in particular, have generated a sizable literature in the past few years.

- Financial Sector Reforms

Since the 1990s, a large number of developing countries have undertaken wide-ranging reforms to their financial systems designed to enhance the role of financial intermediaries in channeling domestic saving, as well as to give the real economy a more outward orientation. The relationship between these reforms and macroeconomic stabilization has been a recurrent focus of attention, and has come to the

---

<sup>2</sup>Ishiyama (1975) and De Grauwe (2012) provide reviews of the literature on this topic.

fore since the GFC in the form of macroprudential regulation, which needs to be structured to the specific characteristics of financial sectors in developing countries.

- The Functioning of Labor Markets

Macroeconomists have begun to appreciate the role that the various types of labor market structures observed in developing nations may play in the analysis of the transmission mechanism of policy shocks. Particularly important phenomena are the incidence of labor market segmentation, the role of government regulations (in setting, for instance, the minimum wages for different categories of workers or in designing unemployment benefit schemes), and the low degree of labor mobility across sectors in the short run.

- Public Capital and Growth

The impact of public investment and public capital on growth has been the subject of much attention in recent academic research and policy debates in the developing-country context. Much academic research (both empirical and analytical) has focused, in particular, on the effects of public infrastructure (see Agénor, 2012*b*). It is now increasingly recognized that infrastructure generates externalities that go much beyond those typically emphasized in the early literature—notably with respect to education and health outcomes.

- Political Aspects of the Macroeconomy

In all countries, political factors play a pervasive role in economic life. The recent literature in macroeconomics has recognized the need to take these factors into account in attempting to understand many macroeconomic phenomena, such as inflation inertia, the setting of policy instruments, and the sustainability of reform programs. The interactions between the political objectives of policymakers and the design of economic policy are critically important in developing countries undergoing macroeconomic reform and remains a major area of investigation.

### **3 Overview of the Book**

The book is organized into five parts. The first part focuses on macroeconomic relationships and differences in market structure between developed and developing nations. Chapter 1 identifies the structural features that, in our view, distinguish most developing countries from the textbook industrial-country model, describes the accounting framework, and discusses some key aspects of macroeconomic modeling for developing countries. Chapter 2 focuses on behavioral functions, exploring in particular how the specification of standard forms of such 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 currency substitution on money demand.

The second part of the book focuses on financial (fiscal, monetary, and exchange-rate) policies in developing countries. Chapter 3 examines the nature of the government budget and its implications for fiscal management, as well as the links among fiscal rules, fiscal discipline, and public investment. Chapter 4 continues the analysis of fiscal issues by exploring the effects of fiscal deficits on a variety of macroeconomic variables. We examine, in particular, the link between budget deficits and the current account, whether fiscal contractions can be expansionary, and the implications of fiscal policy for labor market dynamics. The chapter concludes with an examination of the role of labor market segmentation and sectoral wage rigidity in the transmission of fiscal policy shocks.

Chapters 5, 6, and 7 focus on monetary policy. In recent years, financial liberalization in many developing countries has considerably reduced the adverse effects of financial repression.<sup>3</sup> Chapter 5 begins by reviewing the key characteristics of financial systems in countries (mostly middle-income) that have “moved away” from financial repression, with a particular focus on the role of banks, the credit market, and asymmetric information. Alternative analytical approaches to modeling credit markets at the macroeconomic level are also discussed, with an emphasis on the role of collateral and its implications for risk premia and borrowing constraints. We also provide a broad overview of the monetary transmission mechanism and discuss the implications of dollarization.

We then develop in Chapter 6 a simple static framework for studying the monetary transmission mechanism under fixed and flexible exchange rates, in the context of a small open economy with imperfect capital mobility. The model is used to study a variety of policy and exogenous shocks. Although behavioral equations are not derived explicitly from optimization problems in that chapter, we view this model (given its inherent general equilibrium nature) as a very powerful tool for basic monetary policy analysis in middle-income countries. More rigorous, micro-based models may not be demonstrably better from that perspective, particularly when it comes to discussing real-world policy issues. Precisely because its mechanics are relatively straightforward, it can be adapted to address a number of issues beyond those discussed in this chapter.

Chapter 7 focuses on monetary policy regimes, macroeconomic stability, and financial stability. We begin with a thorough discussion of the principles and mechanics of inflation targeting. In addition, we compare inflation targeting with alternative regimes—monetary targeting, exchange-rate targeting, and especially nominal

---

<sup>3</sup>Most of the material in previous editions dealing with informal financial markets is included in Supplement A, available online.

income targeting. The performance of inflation targeting regimes and challenges to inflation targeting are then discussed. We then turn our attention to financial stability issues in the context of an inflation targeting regime and the relationship between monetary policy and macroprudential policy—a set of prudential rules that focus on mitigating systemic risk and ensuring financial stability. Since the global financial crisis of 2008–2009, the role of macroprudential regulation, and whether or not monetary policy should incorporate a financial stability objective, have been at the forefront of the policy agenda in many countries, developed and developing alike. We conclude with a discussion of some issues that are at the forefront of the research agenda on monetary policy, namely, the role of asymmetries and nonlinearities, the need to account for uncertainty in the monetary transmission process, and the design of interest rate rules aimed at promoting both macroeconomic and financial stability.

Chapters 8 and 9 discuss the choice of exchange-rate regime in developing countries. After a brief review of the evidence on exchange-rate regimes, Chapter 8 discusses the role of credibility—or the lack thereof—on inflation under a fixed exchange-rate regime. We then discuss the role of exchange-rate bands in addressing the trade-off between flexibility and credibility, and currency unions, in which a country surrenders to a supranational authority its ability to manipulate its exchange rate.

Additional criteria for choosing an exchange-rate regime are discussed in Chapter 9. We first focus on the role of the exchange-rate regime in the presence of stochastic shocks. We then examine the various channels (including balance sheet effects) through which changes in the nominal exchange rate may exert contractionary effects on output. To the extent that these effects are large, they would tend to militate against a high degree of exchange-rate flexibility. After discussing moral hazard problems associated with pegged exchange rates, we conclude the chapter with an assessment of the pros and cons of various exchange-rate regimes.

High inflation has been the central problem confronting many well-known stabilization episodes in the developing world. Accordingly, the third part of the book focuses on inflation stabilization issues—in light of the features of developing economies described previously—and the type of models currently in use for studying the impact of monetary policy on inflation.<sup>4</sup>

Chapter 10 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 11 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

---

<sup>4</sup>Supplement B, available online, reviews attempts at stabilizing high inflation in developing countries. Stabilization attempts are classified 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.

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, and the choice between nominal anchors.

The recent global financial crisis has made it abundantly clear that macroeconomic analysis no longer can abstract from financial factors—there is increasing evidence, for both developed and developing countries, to suggest they tend to be an important source of, and a critical propagation channel for, a variety of macroeconomic shocks. The crisis has also led to a shift in the type of questions that are being asked in macroeconomics, and to be able to answer these questions requires an increased emphasis on financial aspects (Woodford, 2010). At the same time, central banks have had to rethink their role and the models that they use for policy, to account not only for financial factors but also for macroprudential regulation, as well as interactions between monetary and macroprudential policies. Indeed, understanding how macroprudential tools operate requires improved understanding of the monetary transmission mechanism, and this in turn requires models in which credit market imperfections take center stage. Equally important, however, is the fact that macroprudential policy regimes may alter the monetary transmission mechanism, and understanding why and how this occurs is critical to the conduct of monetary policy.

From that perspective, Chapter 12 provides an introduction to the type of dynamic stochastic general equilibrium (DSGE) models that many central banks around the world are either using or currently developing. We first present the basic structure of (nonfinancial) DSGE models and then go on to focus on ways to incorporate the type of credit market frictions that are typical of middle-income countries, as discussed in Chapter 5. In that context, we discuss how monetary and macroprudential policies interact to shape macroeconomic outcomes and mitigate the degree of procyclicality of the financial system. Extensions of these models to account for open-economy considerations and macroprudential regulation, as well as their limitations, are also discussed.

Part 4 of the book focuses on financial openness, capital flows, and financial crises. Chapter 13 examines the links between international financial integration and capital flows. We begin by discussing the potential benefits and costs associated with financial integration. We then discuss standard explanations that are offered to explain episodes of large capital inflows into developing countries and review both the macroeconomic challenges that they raise and the policy responses that may be undertaken by the recipient countries.

An important issue for developing countries is their vulnerability to “sudden stops,” that is, abrupt reversals in capital inflows, and their potential to generate currency and banking crises. These issues are discussed in Chapters 14 and 15. The first part of Chapter 14 presents the *first-generation* model of speculative attacks and currency crises, which emphasizes the role of inconsistencies among fiscal, credit, and exchange-rate policies for the viability of a fixed exchange-rate regime.

After considering various extensions of this model, the *second-generation* family of currency crisis models, which emphasizes the role of policy trade-offs and self-fulfilling expectations, is discussed.<sup>5</sup> The third part examines *third-generation* models of currency crises, which give a key role to financial structure fragility and financial institutions. The last part of the chapter presents alternative models of sudden stops, that is, large and abrupt reversals in capital inflows. Chapter 15 discusses various models of banking crises, links between currency and banking crises, and early warning systems for predicting financial crises.

Chapter 16 turns to sovereign debt crises. The history of sovereign borrowing has been fraught with crises, and many prominent default episodes over the past three decades have involved governments in developing economies. In this chapter we consider several analytical and empirical issues related to this experience, such as the assessment of whether a government's fiscal program is sustainable (in the sense of being consistent with solvency), the incentives governments may face to adopt sustainable fiscal programs in the absence of legal mechanisms to compel them to service their debts, and the consequences of sovereign default for the domestic economy.

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 traditional neoclassical theory of growth, in which growth in income per capita is largely exogenous. 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 endogenous growth theories. The importance for growth of fiscal policy, financial factors (including inflation), volatility, and inequality are also examined.

Chapter 18 examines the macroeconomic effects of trade and financial liberalization, as well as of issues associated with the sequencing and speed of reforms. The impact of trade reform on the dynamics of the labor market and unemployment are discussed first, followed by an examination of financial liberalization in the form of interest rate deregulation and the removal of restrictions on credit allocation. We also discuss the implications of financial liberalization for financial stability. The chapter closes with a detailed account of the debate on the proper sequencing of the liberalization and reform measures in these areas, integrating analytical arguments and empirical evidence on alternative sequencing options and the optimal speed of reform.

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 various models of the political business cycle. In that context, it 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

---

<sup>5</sup>Supplement D, available online, reviews the evidence on currency crises that occurred in Mexico (December 1994), Thailand (July 1997)—the latter triggering a full-blown financial crisis in Asia—Brazil (January 1999), and Argentina (January 2002). For coverage of these and several other important currency crises, see Montiel (2013*b*).

developing countries. We also discuss the role of institutions and property rights, the design of fiscal rules, and the link between corruption and financial integration.

## 4 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 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.<sup>6</sup> Money is often introduced into these optimizing models in rather ad hoc

---

<sup>6</sup>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. See also Greenwald and Stiglitz (1987) and Stiglitz (1992).

ways, so their immunity to the Lucas critique is not complete. Most important, the results and insights derived from ad hoc models can often be shown to carry through in more complex, optimizing models. Our overall strategy therefore has 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 and in models of public capital and economic growth, 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 macroeconomics in general, 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 literature on the “new” open-economy macroeconomics.<sup>7</sup> In one approach that has been followed frequently, 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. In different parts of the book, the same symbol sometimes carries different meanings. However, differences in notation never occur within a single chapter, and thus there should be limited risk 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, in standard fashion, the derivative of a variable with respect to time is denoted by a dot over the variable.

---

<sup>7</sup>See Obstfeld (2001) for a broad perspective on the new open-economy macroeconomics, Lane (2001) for a review of various models, and Ganelli (2005) for a contribution focusing on fiscal policy.