

# Preface

The purpose of this book is to build a consistent family of dynamic macroeconomic models whose structure is firmly grounded in rigorous microeconomic principles. The models we will present all come from a synthesis of four central paradigms in economic theory:

- General equilibrium theory, in the line of Walras (1874) and Arrow and Debreu (1954).
- Keynesian theory, as exemplified by Hicks's famous IS-LM model (1937), and later revisited by Patinkin (1956), Clower (1965), and Leijonhufvud (1968).
- Imperfect competition, especially of the monopolistic competition variety due to Chamberlin (1933), and its general equilibrium formalization by Negishi (1961).
- And finally rational expectations, as developed by Muth (1961) and their integration into dynamic general equilibrium macroeconomic models by Lucas (1972) or Kydland and Prescott (1982).

At first sight this list may seem like a contradiction in terms. Everybody in the profession recalls indeed the long battles between classicals and Keynesians, and then between new-classicals and Keynesians, and finally between new-classicals and new-Keynesians. Although such controversies did provide excitement in the field, it seems that the profession has grown beyond these, and that the time is ripe for a more synthetic paradigm within which ideas can be rigorously debated on a common scientific ground. This is why a synthesis of paradigms such as the one outlined above should be particularly welcome.

This strategy of synthesis is not entirely new, however. It began indeed in the early 1970s, a time when opposition between schools was particularly acute. There were then, and there still are, several ways one could envision a unified theory. Our strategy consisted in starting with what was at the time the most rigorous and well-specified theory, that is, the Walrasian one, and enriching it to encompass nonclearing markets and imperfect competition. At the time when the research leading to this book was started, the Walrasian paradigm was essentially the Arrow-Debreu model of general equilibrium. This was soon enriched on the macroeconomic side by Lucas's (1972) reconsideration of the Phillips curve in a rational expectations framework and later by the dynamic stochastic general equilibrium models in the "real business cycles" tradition (Kydland and Prescott 1982; Long and Plosser 1983). All these models have the rigor and microfoundations that were long missing in macroeconomics, and therefore they are a most useful starting point. Still they have nothing to say about what might happen outside Walrasian equilibrium, an obviously too severe restriction.

So the strategy that was followed then, and that which I will continue to follow in this book, consisted in starting from rigorous market-clearing models and generalizing them to various non-Walrasian situations. This way we will obtain a whole new class of models that combine the rigor of traditional Walrasian models with the generality and relevance of models with nonclearing markets and imperfect competition. In this book we will notably construct many dynamic models whose Walrasian versions are similar in spirit to those of real business cycles, but which we will study under much more general, non-Walrasian, conditions.

## Plan of the Book

The book is divided into six autonomous parts.

Part I aims at presenting in a simple and pedagogical way some basic concepts and macroeconomic applications. Chapter 1 starts with a simple market-clearing paradigm as a benchmark, and shows how rationing and quantity signals occur when markets do not clear, how the theory of demand and supply must be modified to take into account these quantity signals, and finally how a rational theory of price setting in nonclearing markets can be developed. Chapter 2 immediately applies these concepts to a very simple macroeconomic framework, and develops in a two-market economy a Walrasian version, a fixprice-fixwage version, and a model where prices and wages are set by imperfect competitors. Equilibrium allocations and the effects of public policies are studied.

Part II consists of the longer chapter 3, which develops the same concepts as chapter 1, but in a full general equilibrium framework. The starting point this time is the multimarket Walrasian equilibrium model, and we integrate into this framework the concepts of rationing, quantity signals, effective demand, and price setting. We further define a few non-Walrasian equilibrium concepts, notably fixprice equilibria and imperfectly competitive equilibria where agents determine prices on the basis of objective demand curves. The efficiency (or rather, inefficiency) properties of these equilibria are thoroughly investigated.

Part III presents macroeconomic models that bring together the various elements described at the beginning of this preface. At this point, and in order to gradually introduce difficulties, I restrict these models to deterministic ones. Chapter 4 constructs an intertemporal model of imperfect competition based on objective demand curves, and asks a question that has puzzled researchers in the field for a while: are imperfect competition models Keynesian or classical? Chapter 5 builds a traditional model of decentralized trade unions and investigates how bargaining powers affect welfare, both at the sectoral and aggregate levels. A notable result is that too much bargaining power on the side of trade unions creates not only underemployment but inefficiencies detrimental to the workers themselves.

Part IV introduces stochastic elements in the preceding models, in the same way as in real business cycles models, but generalizing them to imperfectly competitive environments. Chapter 6 constructs a benchmark model of a dynamic economy with money and imperfect competition and submits it to real and monetary shocks. Although it endogenously generates underemployment, the dynamic behavior of this model is found to be somewhat similar to that of traditional RBC models. Things change drastically in chapter 7, which shows that one can actually generate highly persistent unemployment in such a model, even when the underlying shocks are themselves not persistent, by an adequate combination of imperfect competition and capital-labor complementarities. Chapter 8 introduces endogenous growth, and shows that in such a circumstance imperfect competition modifies the rate of growth as well.

The rigidities considered in part IV are “real.” Part V introduces nominal rigidities into the picture. Chapter 9 considers one-period wage contracts and shows that this can create employment imbalances, with the resulting output-employment dynamics having characteristics intermediate between those of Keynesian and traditional RBC models. At this stage unemployment is not persistent at all, and chapter 10 introduces a new type of staggered wage contract. This type of contract can generate a highly persistent response of employment and output to money shocks, and even the “hump” response that traditional models fail to reproduce. The wage contracts of chapters 9 and 10

make the traditional assumption that labor suppliers always adapt their supply to demand. Chapter 11 describes a dynamic model where wages are rationally determined by trade unions maximizing the welfare of their constituents, and under the assumption of voluntary exchange. As a result the model naturally displays nonlinearities, and the variability of shocks has a direct effect on the average rate of unemployment.

Finally, part VI deals with policy issues, and notably with a problem that stirred enormous controversy at the inception of rational expectations: should government lead activist policies and, if so, which ones? Chapter 12 starts with the simple case where wages are preset and only fiscal policy is available to the government. A central result is that even if the government has no more information than the private sector (this was a central point in the debate), it is nevertheless possible to design activist policies that do much better than nonactivist ones. Chapter 13 extends the argument to the case where wages are set by maximizing trade unions and shows that the results extend readily to that case. Chapter 14 generalizes the argument to the determination of the optimal combination of monetary and fiscal policy. This optimal policy mix turns out to have an activist fiscal policy. Finally chapter 15 investigates the topical issue of optimal monetary policy rules and shows that the widespread neglect of the accompanying fiscal policies is likely to lead to highly distorted recommendations.

## Modeling

All the chapters of this book share a common methodology based on a rigorous general equilibrium approach to nonclearing markets and imperfect competition. This methodology is applied to a wide range of macroeconomic issues.

The dynamic models that are used, however, differ according to the chapter topics. Some use the infinitely lived consumer paradigm, some the two-period overlapping generations model, and chapter 7 an hybrid between the two. Of course, it would have been tempting to use throughout the book a single model, such as the infinitely lived consumer model which is popular with dynamic macroeconomists working in the real business cycles line of thought. It turned out that such a strategy was not feasible for at least two reasons: (1) computations in some cases would have been infeasible, or so clumsy, as to preclude an explicit solution or a reasonable exposition, and (2) the infinitely lived consumer model has the property of Ricardian equivalence, which makes it unfit to study the effects of fiscal policy. Since this is a central theme of the last four chapters on optimal policy, clearly a different model had to be used.

Since treating all problems with a single model was not a feasible option, in each chapter I decided on a model with the purpose to treat the issue at stake in a way that would yield the results in the simplest manner and lead to an elegant and effective exposition. Of course, whatever the issue the underlying methodology remains fully unified throughout the book.

## A Reading Guide

A central interest of this book is clearly in the construction of rigorously microfounded models. However, I wanted also this book to be accessible to the less technical macroeconomist. For that purpose the book provides a number of shortcuts that can be taken in a first reading without impairing the understanding of concepts and results.

First, a number of important results of the various models are described as “propositions,” followed by a proof where these results are rigorously demonstrated. Although this may look at first sight like a mathematization of the exposition, this is actually quite the contrary. The reader can entirely skip the proofs in a first reading without loss of continuity.

Second, chapter 3, which is the most technical and set in the format of Walrasian general equilibrium, can also be skipped in a first reading. Many of the essential concepts were already described in a less technical manner in chapter 1.

In order not to break the continuity of reading the text, references in the text have been kept to a strict minimum. Relevant references are gathered at the end of each chapter. The bibliography includes additional references that are not directly related to a particular chapter’s material but present models or results in a spirit similar to those in this book.

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