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MODERN MACRO-ECONOMICS

an intermediate text

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This book is dedicated to my parents—
Maria Palos Hadjimichalakis
and Gregory Hadjimichalakis

Preface

In writing this book I have tried to present a *modern* treatment of macroeconomics, that is, a treatment that includes in its basic framework all the recent advances in theory which have a direct bearing on the actual working of an entire economy and on the actual conduct of economic policy. This means that, in addition to the traditional classical and Keynesian approaches, we must examine recently advanced models, such as the monetarist, expectational, and supply-side macroeconomic models. My interest has been to present the various competing "schools" and the controversies surrounding them in a fair and objective manner.

My approach has been to write an account that is dynamic, that evolves historically, and that relies on microeconomic foundations. A dynamic approach, one capable of monitoring movements through time, is necessary since the broad magnitudes examined by macroeconomics, such as prices, national income, interest rates and employment, vary through time. We need a framework that evolves historically, since many raging controversies have their origins in the works of such great masters as Wicksell and Keynes. And we need the microeconomic foundations of macroeconomics since macro, the aggregate of individual decisions, must be consistent with those decisions of individual agents.

In addition, these microeconomic foundations of macroeconomics can dispel the most common complaint made by students (and teachers) of macroeconomics, namely that macroeconomics is "different," that it does not use concepts, ideas, and techniques learned in micro, such as maximization by individual agents or supply and demand. I hope that my approach can counteract the prevalent state of affairs in which students who have taken a course in microeconomics are unable to see the interrelationships between micro and macro. By establishing our macroeconomic analysis on a firm microeconomic foundation and by incorporating microeconomic terminology into our analysis, I hope to highlight the unity between these two areas of study.

I also intended to write a rigorous book, which is analytically precise, and which would, nonetheless, be accessible to both instructor and student. Furthermore, I was determined to write this book without using any college mathematics. In fact, one can understand the contents without a knowledge of high school mathematics.

My strategy is to employ an *all-inclusive, flexible* framework capable of generating, and consistent with, such disparate models as the neoKeynesian (i.e., Tobin-Modigliani) and the neoclassical, or monetarist (i.e., Friedman, Brunner-Meltzer), models. In order to do this we need only to insert, at the appropriate point, the particular assumptions. In this effort I hope that I have been objective in my treatment of all the competing theories and schools of thought.

I have designed this framework so that the exposition will be engaging and relevant to the reader; the essence of the book is found in the first ten chapters. This form permits examination of important, arresting issues very early, in fact, as early as Chapter 2. Monetary issues and other controversies appear as early as Chapter 3. In addition, we start by examining issues of the 1970s and 1980s, by strategically introducing and analyzing modern noeclassical macroeconomics with an emphasis on inflation, inflationary expectations, and interest rates, rather than on falling prices, the Great Depression, and the IS-LM curves.

To enhance the accessibility and relevance of the book each of the first four chapters is preceded by a summary section, or "bypass." These bypasses serve two purposes: For those who intend to read the entire chapter, they provide a solid summary; for those who prefer to exclude a chapter and proceed directly to the next chapter, they provide along with a summary, all the tools and information necessary to understand what follows. With the innovation of these bypasses the entire book becomes flexible and meets the needs of a wide range of audiences.

The relevance of the material is underscored by our insistence that the theories be applied to real-world situations. Economic policy *in practice* spans the last 50 years, from the haphazard application of monetary and fiscal policy in the 1930s, to the "New Economics" of the Kennedy-Johnson era, to the Nixon-Ford-Carter economic policies, and now to the "supply-side" policies of the Reagan administration. Furthermore, the recent, drastic change in the Federal Reserve's conduct of monetary policy, which now relies on reserves rather than on federal funds interest rates, and the change in the financial structure, which now permits the payment of interest on demand deposits, are examined in an appropriate practical framework.

Acknowledgments

This book is the outgrowth of eleven years of teaching both undergraduate and graduate macroeconomics courses at the University of Washington. For the first seven years, I asked the students to take notes and then to copy and recopy them, "until they wrote their own textbooks." At the end of the semester or quarter I asked five or six students to lend me their notes, which I read, searching for the points on which most or all of the student notes were unclear or incorrect. These lapses showed me where better explanations were needed in order to provide a clear, simple presentation of the material. During the last four years, photocopies of the manuscript were bound and distributed to the students in order to compile a textbook which was easy to test and was available for comments by both students and colleagues. I have benefited greatly from the comments of many of my undergraduate students, who are too numerous to mention; however, in this group, Daniel T. Slesnick stands out. I have also benefited greatly from the comments and suggestions of several of my graduate students. Special mention is due, chronologically, to Lewis O. Johnson, Eliot B. Bradford, Michael R. McMahon, Andrew R. Criswell, Beth Yarbrough, and Robert Yarbrough. Colleagues who taught and commented on the manuscript include, in addition to former graduate students, James R. Barth, Karma G. Hadjimichalakis, William Kaempfer, and Evan Koening.

I am grateful to several of my reviewers, especially to James R. Barth of George Washington University, John Z. Drabicki of the University of Arizona, and Kenneth A. Lewis of the University of Delaware. Their interest in the contents and exposition of the manuscript went beyond what is expected from or required of reviewers. For assembling this group of reviewers, and for the confidence and the support he gave me throughout this project, I am indebted to David C. Hildebrand of Prentice-Hall. For a truly smooth production process I am thankful to Senior Production Editor Linda Mason, and for the design to Dawn Stanley. I am also thankful to Lynn M. Caddey for superb typing and overall final preparation of the manuscript.

The exposition in this book was greatly improved by the numerous editorial suggestions on the entire manuscript made by my friend and editor, Dollmarvelene Flood Pardi. I am grateful for these suggestions and for her insistence that I avoid the use of "Econojargon" and concentrate, instead, on standard English.

To the extent that the exposition in this book is rigorous I have benefited from the teaching and the tradition established by my teachers at the University of Rochester, Ronald W. Jones and Lionel W. McKenzie. James Tobin has left his imprint throughout this book, especially on Chapters 7, 10, 13, and 14. I am also grateful to him for his generous permission to use unpublished material in Chapter 10.

To the extent that the framework employed in this book is successful, I owe a great deal to my mentor, Hugh Rose, whose influence on the entire text is apparent, but especially in Chapters 2, 3, 4, 5, and 16. It is to Hugh Rose that I owe my understanding of the Wicksellian model, a key ingredient in this book.

I am, however, most grateful to my wife and colleague, Karma G. Hadjimichalakis; it was she who first induced me to write this book by taking notes on my lectures and by persuading me that it would be easy for me to translate the lecture notes into a textbook. How little I knew! In addition, she tried the manuscript on several classes of business students, both at the undergraduate and the MBA level. And, finally, she made detailed comments on all versions of all chapters.

As I write this preface, I am concluding the first year of a two-year tenure at the Board of Governors of the Federal Reserve System. During this first year, a year of great upheaval in financial markets and a year of reappraisal of the conduct of monetary policy, I have benefited from learning the institutional aspects, both the old and new, of monetary policies. I have also been pleasantly surprised to discover how relevant the framework and analysis of this book—essentially completed by the day of my arrival here—is to actual conduct of monetary policy.

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Overview

Macroeconomics deals with models of an entire economy, that is, with scenarios capable of generating and explaining broad magnitudes such as employment and unemployment, national product, and the price level. Macroeconomics endeavors to explain not only why these and similar economy-wide variables have a particular magnitude at any moment but also why they change as they do. Most of these variables are recorded regularly in tables such as the National Product and National Income Accounts, and, in a sense, macroeconomic analysis brings to life the accounting framework of these tables.

We are interested in these economywide variables because they are good barometers of a nation's economic health; it is natural, therefore, that economists might want to influence some or all of these magnitudes. It is understandable, then, that almost every relation we unravel in macroeconomic models may have important policy implications, which is why macroeconomic analysis can be, and usually is, called the theory of economic policy.

It is primarily because of this strong policy orientation that macroeconomics abounds with controversies, a situation that is both understandable and, sometimes, even desirable. After all, a particular policy, say an increase in taxes, affects large masses or even an entire nation. At any rate, since the well-being of large masses is involved, it is advisable to undertake a thorough examination of all the implications of the suggested policy, whether the suggested policy can achieve its stated objective or whether it is the policy best suited for the job. This type of investigation, understandably, breeds controversy.

In this book we do not shy away from controversy. And although we find that some of these controversies are, in fact, inessential, sham disputes and that others emanate from faulty logic, we also discover that some are attributable to important differences in assumptions about economic behavior; in other words, some issues currently dividing macroeconomists are empirical in nature. We examine all these controversies by employing an *all-inclusive, flexible* framework, capable of generating, and consistent with, both neoclassical (Friedman) and neo-Keynesian (Tobin, Modigliani) models of macroeconomics: All that is needed is to insert, at the appropriate point, the particular assumptions.

Yet other controversies can be understood, and thus resolved, only in an *historical* context. In fact, most macroeconomic controversies revolve around interpretations of the work of the great masters; the most important sources are still the neoclassical economists, especially Wicksell, Fisher, and the younger Keynes (before 1936) on the one hand, and the Keynes of the *General Theory* on the other. Although the work of those authors is relatively recent, it was written before mathematics became the main tool of economic theory. Thus, those works were written using the techniques and economic language of their time. As a result, contemporary economists find those works almost impossible to penetrate, which, of course, helps create and perpetuate controversy. The need exists, then, for a modern macroeconomic framework, firmly rooted in an historical context and capable of generating the works of the masters. This will help not only to explain the evolution of our subject but also, and more important, to make the reader both *competent* and *willing* to study the original works to form his or her own opinion about these controversies.

If anything is known about the variables that macroeconomics seeks to explain, it is that they change. We need, therefore, a *dynamic framework,* one capable of examining movements of variables through time. We usually distinguish between short-run dynamics, or those changes in the variables over the short cycle, a period short enough to permit us to treat the economy's capital stock (i.e., its productive capacity) as fixed, and the *long-run* or *growth dynamics,* which deals with long-run trends in the variables examined, usually under the constraint of full employment of the continuously expanding capital stock and labor force.

Although substantial contributions to both branches of dynamics have been made during the last two decades, these contributions are usually absent from macroeconomics texts, which instead mention only a few aspects of growth dynamics. In general, *changes* in the variables are examined by comparative statics and not by a dynamic framework. This attitude seems to suggest to the reader that the profession suffers from fear of *motion sickness,* which, of course, is not true. It is imperative, therefore, that we make the reader immune to any potential motion sickness by designing a dynamic framework from the very beginning.

Macroeconomics is concerned with relationships between broad aggregates. This, however, does not mean that it ignores the body of knowledge about the behavior of individual agents, such as producers or households. On the contrary, during the last forty years there has been a concerted effort to make the aggregate relationships consistent with these considerations of microeconomics. For example, the aggregate consumption function has been restricted to the form of the consumption function of the individual household. And, similarly, the aggregate demand for money was made consistent with the demand of the individual agent.

Modern macroeconomics is related to microeconomics in other, yet equally important, ways. In fact, we can see that the younger field, macroeconomics, has been patterned after the older.

Of course, there is only one microeconomic theory, the general equilibrium (or disequilibrium) theory introduced in 1874 by Léon Walras: The effects of a change in a parameter (or an endogenous variable) in one market will affect all markets and the variables they determine. In other words, all endogenous variables are determined simultaneously by all markets. (This, of course, differs from the partial equilibrium approach where the strategy is to concentrate on a particular aspect, assuming that everything else remains the same. For example, we can take as given all prices but one and investigate supply and demand in the market in which that particular price is determined.) Macroeconomics has been established in modern times, in 1936, as a general equilibrium analysis, and since then its progress has paralleled that of microeconomics. (It is remarkable that Keynes, student and protégé of Marshall, the champion of *partial* analysis, had to reach outside his formal education to design the modern macroeconomic framework. In this sense, Walras, who was largely deleted from the Anglo-Saxon literature, got his revenge posthumously.)

Here, our macroeconomic framework is not only a *general*, rather than a partial, one but is also patterned after other aspects of microeconomics.[1] Within this self-contained book some of the required microeconomic knowledge is developed in Part I, where its inclusion emphasizes that microeconomic knowledge is necessary to the proper understanding of macroeconomics. Chapter 1 emphasizes that the economy is organized into the familiar units of *firms* (or producers) and *households* (or consumers), whose environment and behavior are scrutinized.

The first part of Chapter 1 examines briefly the theory of household choice and applies this theory to the problem of derivation of the household's supply of labor. Two features of both the theory and the application in this part of Chapter 1 are worth emphasizing. First, we note that the household is endowed with quantities of goods rather than given money income, a feature that is partly designed to highlight, in this work of National Income Analysis, that income is one magnitude that must be *determined* from within the system and not assumed as *given* from the outside. Another feature of this part of Chapter 1 is the elaborate treatment of *homothetic* preferences using only elementary techniques. Empirical work usually relies on the

[1] In particular, we define *equilibrium* by stipulating that markets are cleared and expectations fulfilled. The term *ex ante* refers to behavior planned on the basis of parametric prices, while the term *ex post* refers to the actual market situations where plans may not be accomplished and expectations not realized. Perfect flexibility of price is usually sufficient to guarantee that the corresponding market is cleared. Similarly, instantaneous adjustment of expectations to current reality means that expectations are realized, that is, that "myopic perfect foresight" exists. In order to describe the real world according to the equilibrium solution to a model, the minimum requirements must be the *existence* and *stability* of the equilibrium in that model. Therefore, we adhere strictly to these requirements of modern micro theory in this book on macroeconomics.