

**ECONOMIC CRISIS UPDATE**

# Macro economics

**Charles I. Jones**

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## Economic Crisis Update

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Stanford University, Graduate School of Business



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# PREFACE TO THE ECONOMIC CRISIS UPDATE

The macroeconomic events of the last several years are truly breathtaking—a once in-a-lifetime (we hope) occurrence. While the basics of how economists understand the macroeconomy remain solid, the financial crisis itself takes us into waters that, if not uncharted, at least haven't been visited in recent decades. The remarkable collapse in housing prices, the large rise in the financial risk premium, the massive expansion of the Federal Reserve's balance sheet, and the global nature of the financial crisis are among the novel changes in the macroeconomy.

This "Economic Crisis Update" adds two completely new chapters on the global financial crisis to the original first edition of *Macroeconomics*. While the rest of the book is unchanged—everything will be revised in a second edition in the near future—these new chapters provide a comprehensive analysis of the effects of the financial crisis, including its origins and the policy responses it has engendered. Chapter 13, "The Global Financial Crisis: Overview," documents the facts of the financial crisis and introduces a crucial tool for understanding the crisis, the balance sheet. Chapter 14, "The Global

Financial Crisis and the Short-Run Model," uses the short-run model developed in Chapters 9 through 12 to study the financial crisis. Along the way, we explore the important role that leverage played in the financial crisis, the dangers of deflation, the unconventional policy measures undertaken by the Federal Reserve, the possibility of bubbles in financial markets, the 2009 fiscal stimulus, and various recommendations for repairing the financial system.

At the time of this writing, it appears that the worst of the financial crisis is behind us and the foundation for economic recovery has been laid. Of course, policymakers thought this was true in the summer of 2008 as well, and important risks remain. I trust that in either case the analysis in these two new chapters will prove useful in helping us understand these stunning macroeconomic events.

I am grateful to Jules van Binsbergen, Pierre-Olivier Gourinchas, Pete Klenow, James Kwak, Jack Repcheck, David Romer, and Josie Smith for helpful suggestions on the new material and to William Vijverberg for excellent research assistance.

# P R E F A C E

Intermediate macroeconomics is one of my favorite classes to teach. To the new student, the macroeconomic world is a complicated place, full of arcane statistics. It is a great pleasure to witness the moments of understanding that occur throughout a course in macroeconomics: when students appreciate the tremendous economic growth that has occurred over the last century; when they first understand the state-of-the-art theories of why such growth occurs.

But there is also a practical lesson to be learned. Macroeconomics matters. Great depressions, hyperinflations, and growth miracles—enormous wealth is created, lost, and transferred by macroeconomic events. Understanding macroeconomics is not, therefore, a purely intellectual endeavor. Lives and livelihoods are at stake.

I'm extremely excited about this new macroeconomics text. I hope you will find it engaging and illuminating.

## Innovations

(This section will make the most sense to readers with some familiarity with macroeconomics, especially instructors. Students new to the subject might skip to the Guided Tour.)

The most popular textbooks for teaching intermediate macroeconomics were first written fifteen or twenty years ago. Our understanding of the macroeconomy has improved substantially since then, and the time is ripe for a new, more modern treatment.

Of course, this book is by no means a revolution. Its order and structure will feel familiar to in-

structors. But the execution, examples, and pedagogy all have been updated to incorporate the best that macroeconomics instruction has to offer.

What's special about this book? Innovations occur throughout, but the key ones are described below.

## RICH TREATMENT OF ECONOMIC GROWTH

Economic growth is the first major topic explored in the book. After an overview chapter describes the facts and some tools, Chapter 4 presents a (static) model based on a Cobb-Douglas production function. Students learn what a model is with this simple structure, and they see it applied to understanding the 50-fold differences in per capita GDP that we see across countries. Chapter 5 presents the Solow model—but with no technological change or population growth, which simplifies the presentation. Instead, students learn Robert Solow's insight that capital accumulation cannot serve as the engine for long-run economic growth.

Chapter 6 then offers something absent in most (all?) other intermediate macro books: a thorough exposition of the economics of ideas and of Paul Romer's insight that the discovery of new ideas can drive long-run growth.

## FAMILIAR YET UPDATED SHORT-RUN MODEL

When I began this book, I was confident I had new, better ways to present the growth material. I was less sure about how to improve the presentation of short-run macroeconomics. With help from students, reviewers, and colleagues, however, I am now extremely excited about the short-run presentation.

Chapter 12 is where the payoff occurs, and we see the simple, familiar AS/AD framework. The innovation is that the graph is drawn with inflation on the vertical axis rather than the price level—perfect for teaching students about the Volcker disinflation, the Great Inflation of the 1970s, and modern monetary policy. All of the short-run analysis—including explicit dynamics—can be performed in this single graph.

Another innovation in getting to the AS/AD framework is a focus on interest rates and the absence of an LM curve. The central bank sets the interest rate directly in Chapter 11; Chapter 12 introduces a simple version of John Taylor’s monetary policy rule to get the AD curve.

A final innovation in the short-run model is that it features an open economy from the start. Business cycles in the rest of the world are one source of shocks to the home economy. To keep things simple, however, the initial short-run model does not include exchange rates.

#### INTERPLAY BETWEEN MODELS AND DATA

A tight connection between models and data is a feature of modern macroeconomics, and this connection pervades the book. Many exercises ask students to work with real data. Some of this is available in the book itself; some is obtained by using the online *Economic Report of the President*; and some is available in a new data tool I’ve put together: Country Snapshots. This is a pdf file available from [wwnorton.com/college/econ/chad](http://wwnorton.com/college/econ/chad) that contains a page of graphs for each country in the world. The data underlying the graphs can be obtained as a spreadsheet simply by clicking on a link at the top of each page.

#### WORKED EXERCISES AT THE END OF EACH CHAPTER

One of the most effective ways to learn is by working through problems, and a carefully chosen collection of exercises is included at the end of each chapter. From among these, one or two are selected and worked out in detail. Students

are encouraged to attempt these exercises on their own before turning to the full solution.

#### MORE EMPHASIS ON THE WORLD ECONOMY

Relative to many intermediate macro books, this text features more emphasis on the world economy. This occurs in three ways. First, the long-run growth chapters are a main emphasis in the book, and these inherently involve international comparisons. Second, the short-run model features an open economy (albeit without exchange rates) from the very beginning. Finally, the book includes two international chapters in Part 4: in addition to the standard international finance chapter that appears as Chapter 17, Chapter 16 is entirely devoted to international trade.

#### BETTER APPLICATIONS

Part 4 of the book includes three chapters of applications: the two international chapters just discussed and a chapter on the government and the macroeconomy, including an application to what I’ve called “The Fiscal Problem of the Twenty-First Century”—how to finance the growing health-care expenditures. These chapters are not essential, and some instructors may wish to skip one or more of them depending on time constraints.

This approach to applications differs from the more traditional approach of devoting a chapter to each of the expenditure components of GDP (consumption, investment, and so on). These components are discussed in Chapter 10 (“The IS Curve”).

#### A Guided Tour

The book consists of three main parts: The Long Run, The Short Run, and Applications. Surrounding these are an introductory section (Preliminaries) and a concluding chapter (Parting Thoughts).

This organization reflects an increasing appreciation in the profession of the importance of long-

run macroeconomics. In addition, it makes sense from a pedagogical standpoint to put the long run first: this way students understand what it is that the economy fluctuates *around* when we get to the short-run chapters.

A brief overview of each part follows.

### **Part 1: Preliminaries**

We begin with an overview of macroeconomics: what kind of questions macroeconomics addresses and how it goes about its business. A second chapter then discusses the data of macroeconomics in more detail, with a focus on national income accounting.

### **Part 2: The Long Run**

The second part of the book consists of Chapters 3 through 8, and these chapters consider the macroeconomy in the long run. Chapter 3 presents an overview of the facts and tools that economists use to study long-run macroeconomics, with special attention to economic growth. Chapter 4 introduces the Cobb-Douglas production function as a way to understand the enormous differences in standards of living that we see across countries. The interplay between theory and data that is central to macroeconomics makes a starring appearance in this chapter.

Chapter 5 considers the Solow model of economic growth, one of the workhorse models of macroeconomics. We study the extent to which the Solow model can help us understand (a) why some countries are rich while others are poor, and (b) why people in the advanced countries of the world are so much richer today than they were a hundred years ago. Somewhat to our surprise, we will see that the model does not do a good job of explaining long-run economic growth.

For this explanation, we turn in Chapter 6 to the Romer model, which emphasizes the role played by the discovery of new ideas. Thinking about the economics of ideas leads to profound changes in the way we understand many areas of economics.

Chapter 7 studies the most important market in modern economies, the labor market. We learn about the determination of the unemployment rate in the long run and discover that many readers of this book are already, in some sense, millionaires.

Chapter 8 concludes the long-run portion of the book by considering inflation. The quantity theory of money provides a long-run theory of inflation, which, according to Milton Friedman, occurs because of “too much money chasing too few goods.”

### **Part 3: The Short Run**

Part 3 is devoted to the branch of macroeconomics that students are probably most familiar with: the study of booms, recessions, and the rise and fall of inflation in the short run. The four chapters of this part form a tight unit that develops our short-run model.

Chapter 9 provides an overview of the macroeconomy in the short run, summarizing the key facts and providing an introduction to the short-run model that will explain these facts. The next three chapters then go through the model in detail.

Chapter 10 introduces the IS curve, a key building block of the short-run model. The IS curve reveals that a fundamental determinant of output in the short run is the real interest rate. Chapter 11 shows how the central bank in an economy can move the interest rate in order to keep the economy close to full employment. Chapter 11 also provides the link between the real economy and inflation, called the Phillips curve.

Chapter 12 looks at our short-run model in an aggregate supply/aggregate demand (AS/AD) framework. This framework allows the complete dynamics of the economy in the short run to be studied in a single graph. Using this framework, the chapter emphasizes the key roles played by expectations, credibility, and time consistency in modern macroeconomic policymaking.

Also in Part 3 are two new chapters that deal with the economic crisis of the last two years.

## Part 4: Applications

Part 4 introduces three important applications in macroeconomics. Chapter 15 studies the role played by the government in the macroeconomy, including the role of budget deficits and the government's budget constraint. The chapter also considers a key problem that governments around the world will face in coming decades: how to finance the enormous increases in health spending that have occurred for the last fifty years and that seem likely to continue.

Both the long-run and the short-run parts of the book place the study of macroeconomics in an international context. Indeed, the short-run model includes open economy forces from the very beginning. The final two applications of the book, however, go even farther in this direction.

Chapter 16 focuses on international trade. Why do countries trade? Are trade deficits good or bad? How have globalization and outsourcing affected the macroeconomy? Chapter 17 studies international finance, including the determination of the exchange rate.

### Parting Thoughts

Chapter 18 concludes our study of macroeconomics. We summarize the important lessons learned in the book, and we offer a brief guide to the key questions that remain less than well understood.

### Learning Aids

- *Overview:* The opening page of each chapter provides an overview of the main points that will be covered.
- *Boxes around key equations:* Key equations are boxed to highlight their importance.
- *Graphs and tables:* The main point of each figure is summarized in an accompanying text box. Tables are used to summarize the key equations of a model.
- *Guide to notation:* The inside back cover contains a guide to notation, listing each symbol, its meaning, and the chapter in which it first appears.

- *Case studies:* Case studies in each chapter highlight items of interest.
- *Chapter summaries in list form:* The main points of each chapter are listed for easy reference and review.
- *Key concepts:* Important economic concepts are presented in bold type when they first appear. At the end of the chapter, they are listed together for review.
- *Review questions:* Review questions allow students to quiz themselves on what they've learned.
- *Exercises:* Carefully chosen exercises reinforce the material from the chapter and are intended to be used for homework assignments. These exercises include many different kinds of problems. Some require graphical solutions, others use numbers. Some ask you to look for economic data online and interpret it in a particular way. Others ask you to write a position paper for a presidential candidate or to pretend you are advising the chair of the Federal Reserve.
- *Worked exercises:* From the exercises, one or two are selected and worked out in detail at the end of each chapter. These exercises are indicated by the “worked exercise” icon in the margin. You will find these answers most helpful if you consult them only after you have tried to work through each exercise on your own.
- *Glossary:* An extensive glossary at the end of the book defines terms and provides page numbers where more information can be found.



## Supplements for Students

### STUDENT STUDYSPACE

**David Agrawal, University of Michigan**  
[www.norton.com/studyspace](http://www.norton.com/studyspace)

The student StudySpace for *Macroeconomics* is a free and open resource for students to review key concepts and test themselves prior to midterms and finals. It also contains a link to the SmartWork homework problems. The StudySpace offers the following features:



**For organizing**

- Progress Reports
- Chapter Outlines

**For learning**

- Diagnostic Review Quizzes: multiple-choice and true/false quizzes for each chapter that test students on key concepts, data, and facts and provide diagnostic feedback
- Interactive Graphs: interactive versions of the graphs presented in the text

**For connecting**

- Data Plotters: exercises that use real data plotted in graphs to help students understand trends and concepts related to data models
- Interactive Concept Tutorials: interactive Flash-based tutorials where students can get extra help with the most challenging concepts in the course
- Economics in the News RSS feed
- Link to SmartWork

## STUDENT STUDY GUIDE

**David Gillette, Truman State University**

This comprehensive learning manual includes the following for each chapter:

- Overview of the chapter
- Full definitions of the key concepts
- True/false review questions, with solutions
- Multiple-choice review questions, with solutions and explanations
- Exercises, with complete solutions
- Worked exercises
- Problems, with complete solutions
- Worked problems

The solutions to the exercises and problems provide unparalleled support for the student trying to master the material in the course.

## COUNTRY SNAPSHOTS

[www.norton.com/college/econ/chad](http://www.norton.com/college/econ/chad)

To accompany the book, I've put together a resource containing data from more than 200 coun-

tries. Each page of the file snapshots.pdf corresponds to a country and provides graphs of that country's key macroeconomics statistics. Moreover, the data underlying the graphs can be obtained as a spreadsheet simply by selecting a link at the top of each page. Whenever you read about a particular country in the newspaper or in this book, detailed macroeconomics statistics are only a click away.

**Supplements for Instructors**

## SMARTWORK

**Online Homework and Tutorial Program with an Integrated Ebook**  
**Elias Aravantinos, Queens College, City University of New York**

Developed by university educators, SmartWork is the most intuitive online tutorial and homework-management system available for the intermediate macroeconomics course. Powerful quizzing engines support a wide range of questions, including multiple-choice and those using interactive graphs and macroeconomics equations. Answer-specific feedback, tutorial questions, and hints coach students through solving problems, while links to the integrated ebook encourage active reading and provide easy reference to the concepts discussed in the text. Assigning, editing, and administering homework is easy with SmartWork's intuitive authoring tools, which allow instructors to modify existing problems or create their own.

SmartWork highlights:

- An intuitive and easy-to-use interface
- Extensive hinting and answer-specific feedback, including multistep guided tutorial problems
- A wide range of question types, including interactive graphs, multiple-choice, and economics equations
- Intuitive authoring tools that give instructors an easy-to-use environment for editing existing problems or creating their own
- An easy-to-use math palette for composing graphs and mathematical expressions

Algorithmically generated variables so each student sees a slightly different version of the same problem

An at-a-glance gradebook that offers a visual summary of students' work

A full complement of tools for managing assignments and grades

#### LECTURE POWERPOINTS

**Ryan Edwards and Elias Aravantinos, both of Queens College, City University of New York**

This set of PowerPoint slides includes every graph and table from the text, along with insightful annotations. It also contains a PowerPoint slide covering each key concept presented in the chapter, thus providing a lecture-ready resource for the instructor.

#### INSTRUCTOR'S MANUAL

**Garett Jones, George Mason University**

This valuable instructor's resource includes for each chapter an overview, a suggested approach to the chapter lecture, expanded case studies, additional case studies, and complete answers to the end-of-chapter problems.

#### TEST BANK

**Robert Sonora, Fort Lewis College**

Available on CD-ROM or for download in rich-text, Blackboard Learning System, and *ExamView*® *Assessment Suite* formats, the test bank includes over 1,400 carefully constructed true/false and multiple-choice questions.

#### INSTRUCTOR'S RESOURCE SITE

Downloadable resources will include the test bank in rich-text, WebCT/Blackboard, and *ExamView* formats, graphs in jpeg format and as PowerPoints, lecture PowerPoints, and chapter quizzes in WebCT and Blackboard format.

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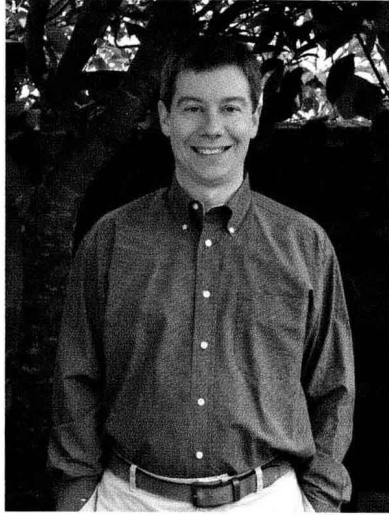
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Charles I. Jones (Ph.D. MIT, 1993) is the STANCO 25 Professor of Economics at the Stanford University Graduate School of Business and a Research Associate of the National Bureau of Economic Research. Professor Jones's main research contributions are to the study of long-run economic growth. In particular, he has examined theoretically and empirically the fundamental sources of growth in per capita income over time and the reasons underlying the enormous differences in standards of living across countries. In recent years, he has used his expertise in macroeconomic methods to study the economic causes of the rise in health spending and longevity. He is the author of *Introduction to Economic Growth*, Second Edition, also published by W. W. Norton & Company.

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**Economic Crisis Update**

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