

STRUCTURAL MACROECONOMETRICS

Preface

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Chetan Dave

Let me only say that what econometrics-aided by electronic computers-can do, is only to push forward by leaps and bounds the line of demarcation from where we *have to* rely on our intuition and sense of smell.

Ragnar Frisch, Nobel Prize Lecture, June 1970.

It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.

Sir Arthur Conan Doyle

A steady stream of conceptual and computational advances realized over the past three decades has helped to bridge the gulf that has historically separated theoretical from empirical research in macroeconomics. As a result, measurement is becoming increasingly aligned with theory. The purpose of this text is to provide guidance in bringing theoretical models to the forefront of macroeconomic analyses.

The text is suitable for use as a supplementary resource in introductory graduate courses in macroeconomics and econometrics; and as a primary textbook in advanced graduate courses devoted to the pursuit of applied research in macroeconomics. The lecture notes that ultimately gave rise to the text were designed for this latter purpose. The text's historical perspective, along with its unified presentation of alternative methodologies, should also make it a valuable resource for academic and professional researchers.

Readers of the text are assumed to have familiarity with multivariate calculus and matrix algebra, and cursory knowledge of basic econometric techniques; otherwise, the text is self-contained. Familiarity with dynamic programming is also useful. This is the tool used to map the class of models of interest here into the system of non-linear expectational difference

equations that serve as the point of departure for the empirical methodologies presented in the text. However, familiarity with dynamic programming is not needed to follow the text's presentation of empirical methodologies.

We decided to write this text because through our own teaching and research, we have sought to contribute towards the goal of aligning theory with empirical analysis in macroeconomics; this text is a natural extension of these efforts. We set out to accomplish two objectives in writing it. First, we wished to provide a unified overview of this diverse yet interrelated area of active research. Second, we wanted to equip students with a set of tools that would expedite their own entry into the field.

The content of this text reflects much that we have learned over many years spent pursuing collaborative research with a fabulous group of co-authors: Patty Beeson, Dan Berkowitz, Steve Husted, Beth Ingram, Roman Leisenfeld, John Nankervis, Jean-François Richard, Marla Ripoll, Gene Savin, Werner Troesken, and Chuck Whiteman. We are deeply indebted to them for their implicit and explicit contributions to this project. We have also benefitted from input provided by Charlie Evans, Jim Feigenbaum, Jesús Fernández-Villaverde, Peter Ireland, Chris Otrok, Juan Rubio-Ramírez, Tom Sargent, Yi Wen, and Tao Zha on various aspects of the text. Finally, Hariharan Dharmarajan provided valuable research assistance on the empirical application presented in Chapter 10.