This book tells the story of the search for non-Walrasian microfoundations for macroeconomic theory, from the disequilibrium theories of Patinkin, Clower, and Leijonhufvud to recent dynamic stochastic general equilibrium models with imperfect competition. Placing this search against the background of wider developments in macroeconomics, the authors contend that this was never a single research program, but involved economists with very different aims who developed the basic ideas about quantity constraints, spillover effects, and coordination failures in different ways. The authors contrast this with the equilibrium approach of Phelps and Lucas, arguing that equilibrium theories simply assumed away the problems that had motivated the disequilibrium literature. Although equilibrium Walrasian models came to dominate macroeconomics, non-Walrasian theories never went away and continue to exert an important influence on the subject. Although this book focuses on one strand in modern macroeconomics, it is crucial to understanding the origins of modern macroeconomic theory.

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(continued after index)
Transforming Modern Macroeconomics

Exploring Disequilibrium Microfoundations, 1956–2003

ROGER E. BACKHOUSE
University of Birmingham

MAURO BOIANOVSKY
Universidade de Brasilia
Dedicated to the memory of Edward Backhouse (1919–1988)

and David Luiz Boianovsky (1932–1996)
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We began working on the topic of disequilibrium macroeconomics when we were both visiting Duke University, in the first semester of 2003. By 2005, we had three papers written, but we were having problems dividing the material into self-contained papers of a length with which journal editors would be happy. Our first paper, from which material for several chapters of the current book was drawn, grew to around 20,000 words, while the other papers, though of more reasonable length, took material out of the broader context. Although reactions to the papers were favorable, the almost universal response was “But you also need to say something about x, y, and z.” We also came to see that disequilibrium macroeconomics was far more central to the transformation of macroeconomics that has taken place since the 1950s than we had realized. For several years, we both put this work aside and turned to other projects. Prompted by the growing interest in the history of recent economics, and macroeconomics in particular, we eventually decided that it was time to write our material into a book on the search for disequilibrium microfoundations for macroeconomics, adding the material that was needed to fill out the story. This book is the result. Although based on our earlier discussion papers, and although Turnitin would no doubt detect matching text, the material has been completely rewritten.

For one of us (Backhouse), this project presents a new challenge in that we are writing about a literature to which he once tried to contribute. However, sufficient time has passed (the work dates from 1974, was used in a thesis in 1976, and then was published between 1980 and 1982) for it to be possible to look back on this as a historical episode. More important, having subsequently chosen to specialize in the history and methodology of economics, not in macroeconomics, no credibility issues are at stake. In any case, these papers, published when the profession was moving away from this subject, were incidental and are mentioned only in footnotes.
We are grateful to participants in the story we tell who were willing to write, sometimes at great length, responding to questions and commenting on draft material: Robert Barro, Jacques Drèze, John Fender, Jean-Michel Grandmont, Frank Hahn, Geoff Harcourt, Peter Howitt, Axel Leijonhufvud, Edmond Malinvaud, Richard Portes, Robert Solow, and David Winter. We owe a particular debt to Jean-Pascal Bénassy for his careful reading of a large part of the manuscript and his advice on how the structure of the book could be improved. We also benefited from the comments of two anonymous referees who made many valuable suggestions. The usual caveat applies: none of them should be blamed for the use we have, or have not, made of their ideas.

None of the material here has been previously published, though much of it was circulated, in 2004–2007, as discussion papers and was discussed at conferences and seminars, including the History of Economics Society, the European Society for the History of Economic Thought, the Brazilian Economic Society (ANPEC), the University of Birmingham, Université Catholique de Louvain, London Metropolitan University, University of Paris I, and Hitotsubashi University. A version of the material in Chapter 7 was presented at a conference on “General Equilibrium as Knowledge” at the University of Paris I (Sorbonne-Pantheon), in September 2007. We are grateful to participants in these events for helping us clarify many ideas and drawing out attention to points that we had overlooked.

Some chapters in this book draw on material from the Patinkin, Clower, Leijonhufvud, Modigliani, and Solow Papers, held as part of the Economists’ Papers Project in the David M. Rubenstein Rare Book and Manuscript Library at Duke University. We are grateful to the archivists, including Will Hansen and Elizabeth Dunn, who have been unfailingly helpful. We are grateful to Robert Barro, Earlene Clower, Jan Kregel, Axel Leijonhufvud, Robert Solow, and Roy Weintraub for permission to quote from unpublished papers and correspondence.
This provides selected biographical information on the leading figures in the search for disequilibrium microfoundations, focusing on facts that are relevant to this. Further biographical information on many of these figures is provided in the main text. If no country of birth is given, it is the United States. Qualifications other than the Ph.D. are given only if the person did not obtain a Ph.D. or an equivalent. Honorary and higher doctorates are ignored. Affiliations listed are, with some exceptions, confined to the economists’ main positions and exclude visiting and emeritus positions. There is ambiguity in listing emeritus positions, which reflects the ambiguity over the point at which many academics cease to be actively involved in research.

Abbreviations: CEPREMAP – Centre pour la recherche economique et ses applications; CNRS – Centre national de la recherche scientifique; INSEE – Institut national de la statistique et des études economiques; LSE – London School of Economics; MIT – Massachusetts Institute of Technology; UCLA – University of California Los Angeles.

**Alchian, Armen A.** (1914–; Ph.D. Stanford 1944; UCLA and RAND 1946–) An industrial economist known mainly for his work on industrial economics and property rights, he was an early contributor to the literature on decision making when information is costly. Although he did not contribute directly to the disequilibrium macroeconomics literature, he was an important contributor to the Phelps volume (Phelps et al. 1970) and an influence on the early work of Axel Leijonhufvud.
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**Arrow, Kenneth J.** (1921--; Ph.D. Columbia 1953; Stanford 1953–68, Harvard 1968–79, Stanford 1979–) An influential figure in many fields of economics and creator, with Gérard Debreu, of what became the canonical model of general competitive equilibrium; he listed, in 1959, a series of “scandals” in general equilibrium theory that stimulated others to construct models of general equilibrium with imperfect competition. He co-authored with Frank Hahn a graduate textbook *General Competitive Analysis* (1971) that covered Keynesian problems.


**Bénassy, Jean-Pascal** (France 1948--; Ph.D. Berkeley 1973; CEPREMAP 1973–, CNRS 1975–, Laboratoire d'économie politique, Ecole Normale Supérieure 1984–88) His Ph.D, supervised by Gérard Debreu and Bent Hansen, on disequilibrium theory extended the theory of general equilibrium to non-clearing markets. He continued to work on disequilibrium microfoundations and sought to integrate the economics of non-market clearing with imperfect competition.


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theorist working primarily on industrial economics, international trade, and investment, he was co-author with fellow MIT student Joseph Stiglitz of a significant paper on disequilibrium macroeconomics.

Drazen, Allan (1950–; Ph.D. MIT 1976; Chicago 1976–82, Tel Aviv 1982–90, Maryland 1990–) One-time assistant to Don Patinkin, author of an important survey of the disequilibrium macroeconomics in 1980. His subsequent work focused on macroeconomics and political economy.

Drèze, Jacques (Belgium, 1929–; Ph.D. Columbia 1958; Carnegie Tech 1957–58, Louvain 1958–89, Chicago 1964–68) Economic theorist and industrial economist focusing on decision making under uncertainty, he was author of a widely discussed concept of equilibrium with rationing in 1975. He was closely associated with the group centered on CEPREMAP.


Grandmont, Jean-Michel (France, 1939–; Ph.D. Berkeley 1971; CNRS and CEPREMAP 1970–96, École polytechnique 1992–) His Ph.D. supervised by Gérard Debreu, he was the author of a series of papers, many co-authored with colleagues associated with CEPREMAP, on equilibrium in a monetary economy.


Hahn, Frank H. (Germany, 1925–; Ph.D. London 1951; Birmingham 1948–60, Cambridge 1960–66 and 1972–92, LSE 1967–72, Siena 1989–) An economic theorist who focused on general equilibrium and the theory of money, he contributed to the early development of models of general equilibrium with imperfect competition and the study of non-tâtonnement processes. He co-authored, with Kenneth Arrow, General Competitive
Dramatis Personae

Analysis (1971) and, with Robert Solow, a book on macroeconomic theory (1995). In the late 1970s, he worked with a group of young theorists on information and missing markets and explored what he called “conjectural equilibria.”


Hicks, John R. (United Kingdom, 1904–1989; BA 1925; LSE 1929–35, Cambridge 1935–38, Manchester 1938–46, Oxford 1946–65) Widely regarded as Britain’s leading economic theorist in the 1930s, he was responsible for the IS-LM model (1937) and Value and Capital (1939), which inspired much post-war work on general equilibrium theory. In the 1970s, he questioned the Keynesianism he had helped to create and he was the inspiration behind the 1975 International Economic Association conference on the microeconomic foundations of macroeconomics (Harcourt 1977).

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Keynes, John Maynard (United Kingdom, 1883–1946; MA 1905; Cambridge 1908–42) The economist whose work lies behind the search for disequilibrium microfoundations.


Lange, Oskar (Poland, 1904–65; LLD Krakow 1928; Krakow 1931–35, Michigan 1943, Cowles Commission at Chicago 1943–45, Warsaw 1955–65) While in Chicago he attempted to reinterpret Keynesian theory in terms of Walrasian general equilibrium theory and helped establish the neoclassical synthesis view of Keynesian economics. His work provided the starting point for Don Patinkin, who had attended his lectures in Chicago.

Laroque, Guy (France 1946–; DEA 1971; INSEE 1982–) Working with Jean-Michel Grandmont and others, he was responsible for a series of papers on temporary equilibrium with rationing in the mid-1970s.


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Muehlbauer, John (Germany 1944–; Ph.D. Berkeley 1975; Warwick 1969–72, Birkbeck College London 1972–81, Oxford 1981–) A specialist in the economics of consumption he was co-author, with Richard Portes, of a dynamic extension of disequilibrium theory in 1978.


Negishi, Takashi (Japan 1933–; Ph.D. Tokyo 1965; Stanford 1958–60, Tokyo 1965–94, Aoyama Gakuin 1994–) A general equilibrium theorist, he developed some of the earliest models of equilibrium with monopolistic competition and in subsequent years produced a range of theories that he summed up as Economic Theories in a Non-Walrasian Tradition (1985).

Patinkin, Don (1922–1995; Ph.D. Chicago 1947; Illinois 1948–49, Hebrew University Jerusalem 1949–97) His Money, Interest, and Prices (1956, 1965), both laid a theoretical foundation for the neoclassical synthesis and derived the quantity-constraint spillover effects that were central to the disequilibrium macroeconomic literature. After this book, most of his time was spent on other areas of economics, from the Israeli economy to the theory of money and the history of the Keynesian revolution.

Phelps, Edmund S. (1933–; Ph.D. Yale 1959; Yale 1959–66, Pennsylvania 1966–71, Columbia 1971–) He was responsible for the “Phelps volume” (Phelps et al. 1970) that opened up the information-theoretic explanations of unemployment that were developed by Robert Lucas into what became the new classical macroeconomics, though his own work took him in different directions.

the control of enterprises in centrally planned economies, who overlapped briefly with Richard Quandt at Princeton, he co-authored a dynamic extension of the fixed-price model in 1978 and undertook a series of papers, many co-authored with David Winter, on estimating disequilibria in East European countries.

Quandt, Richard (Hungary 1930–; Ph.D. Harvard 1957; Princeton 1956–) A microeconomic theorist (and author of a widely used textbook) and econometrician, who focused on the estimation of non-linear models and of markets with rationing.

Samuelson, Paul A. (1915–2009; Ph.D. Harvard 1941; MIT 1940–2009) One of the leading U.S. Keynesians who created the 45-degree line model that, together with the IS-LM model, dominated the teaching of Keynesian economics. He invented the term “neoclassical synthesis.”

Solow, Robert M. (1924–; Ph.D. Harvard 1951; MIT 1950–) One of the most prominent Keynesian economists of the Keynesian era, he co-authored, with Joseph Stiglitz, a model of macroeconomic disequilibrium that was published in 1968, three years before the Barro-Grossman model. A later paper, co-authored with Ian M. McDonald, added to the new Keynesian literature a model of a monopoly union, and he co-authored a book with Frank Hahn challenging the new classical conception of how markets work.


Weintraub, Sidney (1914–83, Ph.D. New York University 1941; New School 1951–57, Pennsylvania 1950–83) A Keynesian economist who was responsible for developing Keynes's theory as a theory of aggregate demand and supply, which he applied to problems of inflation and income distribution. He is often credited with being the first to use the term “microfoundations.”

Portes, of a series of articles on the estimation of disequilibrium systems in Eastern European countries.


Younès, Yves (Tunisia, 1937–1996; Tunis; CEPREMAP) A co-author, with Edmond Malinvaud, Jean-Michel Grandmont, and others at CEPREMAP, of articles on the theory of general equilibrium with quantity rationing in the mid-1970s.