



**EDITED BY PEDRO GARCIA DUARTE
AND GILBERTO TADEU LIMA**

MICROFOUNDATIONS RECONSIDERED

**THE RELATIONSHIP OF MICRO AND
MACROECONOMICS IN HISTORICAL PERSPECTIVE**



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Microfoundations Reconsidered

The Relationship of Micro and
Macroeconomics in Historical Perspective

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Edward Elgar

Cheltenham, UK • Northampton, MA, USA



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Published by
Edward Elgar Publishing Limited
The Lypiatts
15 Lansdown Road
Cheltenham
Glos GL50 2JA
UK

Edward Elgar Publishing, Inc.
William Pratt House
9 Dewey Court
Northampton
Massachusetts 01060
USA

A catalogue record for this book
is available from the British Library

Library of Congress Control Number: 2012935325



Cover image:

“Meninos Nadando” (“Boys Swimming”)

Candido Portinari, 1955

Tile panel

152 × 212 cm (panel)

15 × 15 cm (tiles)

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ISBN 978 1 78100 409 8 (cased)

Typeset by Columns Design XML Ltd, Reading
Printed and bound by MPG Books Group, UK

Foreword

The 2008 financial crisis, that threatened the foundations of the world economy and precipitated severe economic contraction world-wide, was also a crisis for standard macroeconomic theory, which failed to anticipate the crisis, and then could not explain it when it happened. Mainstream macroeconomists, in fact, had generally shared Olivier Blanchard's mistaken verdict expressed at the beginning of the decade that "progress in macroeconomics" was "the success story of twentieth century economics" (Blanchard 2000: 1375). There were indeed dissenting voices, but they were mostly ignored and dismissed within the profession. Now it is time to revisit this dissent, much of which especially targeted the standard view that macroeconomics requires neoclassical microfoundations which assume that economic agents make rational choices and form rational expectations regarding the future.

Interestingly, whereas the Great Depression precipitated change in economics and led to the emergence of macroeconomics, the recent crisis was preceded over the previous several decades by considerable debate among microeconomists regarding the nature of rationality and behavior. This debate, however, clearly had little impact on most macroeconomists before the crisis, who were locked into traditional views about the nature of individual behavior and its relation to the macroeconomy. But this debate is now beginning to find a place in macroeconomics with increasing attention being given to crisis phenomena, doubts about rational expectations and the efficient markets hypothesis, information cascades, aggregation problems, herding behavior, and complex systems.

This volume, written by some of the most accomplished historians of macroeconomics today, provides readers with a deeper understanding of many of the issues surrounding the relationship between macroeconomics and microfoundations. This historical perspective is very important. Not only was dissent from mainstream macroeconomics ignored over the past decade, but the historical record regarding earlier thinking on the subject was mis-stated and reconstructed in such a way as to represent the standard view as "the success story of twentieth century economics." The 2008 crisis thus had one positive: it has reminded economists of the need to reflect upon their unexamined (and often suppressed) assumptions. Thus this

volume is a welcome addition to the macroeconomic research literature. Readers can expect not only to learn about where macroeconomics has been, but also where it might go in the future.

John B. Davis

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Acknowledgements

This book results from a series of efforts to which many people contributed. After a conversation in 2008, we decided to organize an international symposium on the history of recent economics at the University of São Paulo (FEA-USP), Brazil, aiming to bring together renowned international and local scholars in this field. We then agreed that having as a theme the relationship of micro and macroeconomics would make way for a fruitful historical discussion among not only the invited speakers and discussants but also with the audience at large.

We were honored to have as invited speakers Robert J. Gordon (Northwestern University), Kevin D. Hoover (Duke University), Robert Leonard (Université du Québec à Montréal), D. Wade Hands (University of Puget Sound), Philip Mirowski (University of Notre Dame), and Michel De Vroey (Université Catholique de Louvain), in addition to Pedro Garcia Duarte (FEA-USP). As discussants we were very pleased to have Ana Maria Bianchi (FEA-USP), David Dequech (Unicamp), Eleutério da Silva Prado (FEA-USP), Fabio Barbieri (Department of Economics at Ribeirão Preto, FEARP-USP), Franklin Serrano (Federal University of Rio de Janeiro, UFRJ), Gilberto Tadeu Lima (FEA-USP), José Raymundo Chiappin (FEA-USP), Mauro Boianovsky (University of Brasília, UnB), Raul Cristóvão dos Santos (FEA-USP), and Roberta Muramatsu (Mackenzie University and Insper). We were also delighted to have Professor João Sayad (FEA-USP) giving the opening remarks.

Soon after we started organizing the symposium, that took place on August 3–5 2009, we received crucial support from Professor Antonio Delfim Netto (Emeritus Professor, Department of Economics, FEA-USP). Professor Delfim was not only a great enthusiast of the symposium but also played a pivotal role in helping us obtain financial support complementary to that obtained from research financing agencies: we are very grateful to FAPESP (São Paulo Research Foundation), Banco Bradesco and FIPE (Foundation of Economic Research) for financial support to the symposium. We acknowledge the support given by the Department of Economics and by the School of Economics, Business and Accounting at the University of São Paulo (FEA-USP), without which we would not have been able

to organize the symposium. We also thank Andre Bueno Rezende de Castro for assisting us in the organization of the symposium.

After the symposium, both at a follow-up session held at the 2010 Annual Meeting of the Allied Social Science Associations (ASSA) – chaired by John B. Davis and with Perry Mehrling as overall discussant – in Atlanta, USA, and during the preparation of this book, we had the good fortune to receive the support, criticisms and suggestions of Kevin Hoover, Michel De Vroey, Perry Mehrling (Barnard College, Columbia University) and Craufurd Goodwin (Duke University), as well two anonymous readers. We thank John Davis for writing the Foreword. We are also very grateful to “Projeto Portinari” and to João Candido Portinari for authorizing us to use the beautiful artwork “Boys Swimming” (1955) by Candido Portinari both on the poster for the symposium and on the cover of this book.

We are very thankful to the authors and to all of the other people that in their way have contributed to the publishing of this book. Here we would very much like to express our gratitude to Edward Elgar for the interest in this project and for the highly professional support it gave us throughout the process: we are especially grateful to Tara Gorvine, Alexandra Mandzak, Suzanne Giles, and Nicolas Wilson for all their editorial help.

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São Paulo, February 2012

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Introduction: Privileging micro over macro? A history of conflicting positions

Pedro Garcia Duarte and Gilberto Tadeu Lima¹

1. THE STANDARD NARRATIVE

Mainstream macroeconomists agree that we live in the age of microfoundations. The worldwide financial crisis of 2008 to the present may have emboldened critics of this microfoundational orthodoxy, but it remains the dominant view that macroeconomic models must go beyond supply and demand functions to “the level of objective functions, constraint sets, and market-clearing conditions” (Sargent 1982: 383). Only by doing this, the argument goes, can we truly understand “the way in which optimizing agents make their decision rules”, which in turn “depend on the dynamic environment in general, and the government policy rules in particular” (Sargent 1982: 383). The goal of the microfoundations project, as articulated in the 1980s, was to reincorporate “aggregative problems such as inflation and the business cycle within the general framework of ‘microeconomic’ theory” (Lucas 1987: 107). Microeconomics on this view is prior to macroeconomics, because “only when macroeconomic aggregates are explicable as consequences of well-formulated optimization problems for individuals ... will macroeconomic reasoning be secure” (Hoover 1988: 87; see also Backhouse 1995: ch. 8). The ultimate aim is the “euthanasia of macroeconomics” (Hoover 1988: 87; 2010: 331). As Robert Lucas puts it, if the microfoundations project succeeds, “the term ‘macroeconomic’ will simply disappear from use and the modifier ‘micro’ will become superfluous. We will simply speak ... of economic theory ...” (Lucas 1987: 107–108).

The priority of microeconomics appeared to the proponents of microfoundations as the inevitable consequence of the very notion of economics understood, as Lionel Robbins (1932) famously put it, as the study of choice under constraint.² It is probably no coincidence that microfoundations began to gain their greatest traction only in the 1970s since, as Backhouse and Medema (2009) have argued, Robbins’ definition finally conquered mainstream economics only at about that time.

The attitudes that were reflected in one side of the debate on microfoundations in the 1980s have become in the new millennium the common wisdom of macroeconomists. Michael Woodford's *Interest and Prices* (2003) is emblematic of the new consensus between new Keynesians and new classicals about macroeconomics needing microfoundations:

I consider the development of a model of the monetary transmission mechanism with clear foundations in individual optimization to be important for two reasons: It allows us to evaluate alternative monetary policies in a way that avoids the flaw in policy evaluation exercises using traditional Keynesian macroeconomic models stressed by Lucas (1976); and the outcomes resulting from alternative policies can be evaluated in terms of the preferences of private individuals that are reflected in the structural relations of one's model. ... My preference for this form of structural relations is precisely that they are ones that should remain invariant (insofar as the proposed theory is correct) under changes in policy that alter the stochastic laws of motion of the endogenous variables. ...

A second advantage of proceeding from explicit microeconomic foundations is that in this case, the welfare of private agents ... provides a natural objective in terms of which alternative policies should be evaluated. (Woodford 2003: 11–12)³

The standard narrative of the rise of microfoundations locates their origins in the work of Lucas and his new classical friends and followers in the 1970s (see Hoover, Chapter 1).⁴ Lucas and Rapping (1969) attempted to provide microeconomic underpinnings for the labor market in an otherwise Keynesian (IS-LM) model. This first attempt was “classical” in the sense of relying on a market-clearing framework. It was “new” in its emphasis on the importance of intertemporal choice in labor markets. However, for the lack of a more plausible hypothesis, they relied on adaptive expectations in their labor-market model, which did not please Lucas because agents could make systematic mistakes. In subsequent work, Lucas (1972a,b, 1973) introduced rational expectations, which he regarded as the natural consequence of the attempt to provide a general-equilibrium account of the macroeconomy. The notion of rational expectations as model-consistent, equilibrium, expectations has a general-equilibrium character. Sargent (1973) and Sargent and Wallace (1975) independently introduced rational expectations into an IS-LM model.

The rational expectations hypothesis seemed to require a general-equilibrium approach. The IS-LM model could be seen as an *aggregate* general-equilibrium model; but it was not, in itself microfoundational: its equations were not derived from the optimization problems of individual agents. Although Lucas and Rapping had explored models based on

optimization, it was only with Lucas's (1976) famous critique of econometric policy evaluation that rational expectations came to be seen to require models based on the optimization problems of individuals (models based on "first principles") and that microfoundations began to seem to be compulsory for macroeconomics. The target of Lucas's critique was the large-scale macroeconomic models that had emerged through the work of Lawrence Klein, among others, out of the work of Tinbergen in the 1930s and the Cowles Commission's econometric program of the 1940s and 1950s (a program discussed by Philip Mirowski, Chapter 4). The essence of the critique was that rational agents solved their optimization problems with knowledge of the prevailing policy regime. If an alternative policy were instituted, rational agents would have to solve a different optimization problem and the relationships among aggregate data, which are the economy-wide consequences of the solution of individual optimization problems, would change in response. It was not, therefore, acceptable to treat the estimated aggregate econometric relationships of the large-scale macroeconomic models as invariant under alternative policies, thus calling into question their use for evaluating macroeconomic policy.⁵

The Lucas critique provided an intellectual basis for the requirement that macroeconomic models possess precise microfoundations of a specific format; while the market-clearing assumptions preferred by the new classicals in conjunction with the rational-expectations hypothesis provided grounds for a vigorous rejection of the policy activism associated with Keynesian economics. As Kevin Hoover (Chapter 1) and Michel De Vroey (Chapter 5) discuss, Keynes was blamed for having "freed a generation of economists from the discipline imposed by equilibrium theory," a freedom that "was rapidly and fruitfully exploited by macroeconometricians" (Lucas 1977: 12) in their "nascent program of aggregative econometric modeling" (Hoover, Chapter 1, p. 19).

Lucas and his followers argued that macroeconomics could be secured against the Lucas critique only when it was grounded in adequate microfoundations, a belief that remains strongly held until today (as evidenced by the earlier quotation of Woodford 2003). The standard narrative sees Lucas as having inaugurated a new microfoundational era in macroeconomics and in policymaking. His work is seen to have naturally developed into the real business cycle models of Kydland and Prescott and their students and followers (for example, Kydland and Prescott 1982). Economists with a Keynesian orientation rejected market clearing as an acceptable basis for macroeconomics and, equally, insisted on the possibility of monetary and fiscal policies improving macroeconomic outcomes. Those who nonetheless accepted the Lucas critique and the microfoundational imperative that

it implied were transformed into “new Keynesians”. As a further development, the so-called dynamic stochastic general-equilibrium (DSGE) models, which were structurally related to real business cycle models, but flexible enough to incorporate Keynesian concerns, became the foundation for a “new neoclassical synthesis” (see Duarte, Chapter 6). While debates continue over the best model of the economy and its policy implications, the mainstream consensus among new Keynesians, as well as new classicals (and RBC theorists), uniformly embraces Lucas’s program of microfoundations for macroeconomics.

What should we think of the standard narrative? The operating premise in assembling the present volume was that the internal narrative of mainstream macroeconomics is likely to be unreliable, its principal function being to buttress a particular, historically contingent methodological argument. Our purpose in assembling the present volume is to step back and to re-examine the history of the relationship of microeconomics and macroeconomics without presupposing the truth of the standard narrative. We begin with the emergence of micro and macroeconomics as self-consciously distinct fields within economics in the early 1930s. The authors in this collection seek to get behind and beyond the potted history of the development of the fields that is often told and written by practicing economists. From different perspectives and entry points, they challenge the association of microfoundations with Lucas and rational expectations, and offer both a more complete and deeper reading of the very relationship between micro and macroeconomics. The chapters grew out of papers presented to the First International Symposium on the History of Economic Thought sponsored by the Economics Department of the University of São Paulo (USP), São Paulo, Brazil, on 3–5 August 2009. Its theme was “The Integration of Micro and Macroeconomics from a Historical Perspective.”⁶

2. BEYOND THE STANDARD NARRATIVE

Far from a new concern of the 1970s, microfoundations – or, at the least, the question of the relationship of microeconomics to macroeconomics – was actively discussed from nearly the moment that the distinction between micro and macroeconomics emerged in the 1930s. What was the right scale of analysis? Should the focus be on individual behaviour or on macroeconomic (aggregate) relationships? What kind of models can we use to analyse problems at each level? Are macroeconomic relationships consistent with microeconomic behavior? For example, what is the relationship of aggregate consumption and the individual’s consumption decision? How does an aggregate money demand function relate to an individual’s decision

over the division of his financial wealth between money and interest-bearing assets? Can fluctuations of inventories at the level of the firm explain fluctuations of overall economic activity? Can we aggregate individual decisions into a demand or supply function for output as a whole? How? And what properties do aggregate functions inherit from the individuals behind them? Putting these questions in a broader frame:

One crucial issue in the microfoundations literature is the extent to which aggregate economic variables and/or relationships exhibit features that are similar to the features of individual variables and/or relationships, and in particular whether certain features are emergent properties at the macro level that do not have a natural counterpart at the individual level. (Maarten C.W. Janssen 2008)

Such foundational issues concerning the relationship between micro and macroeconomics were bound to shape the economics produced since the 1930s. Against the standard narrative stands the fact that the term microfoundations was coined in the 1950s, well before Lucas's first forays into macroeconomics challenged the mainstream (see Hoover, Chapter 1). Microfoundations was an integral part of the discussions within general equilibrium theory, as well as a central concern of critical alternatives to Walrasian general equilibrium theory (see Weintraub 1979, ch. 7, and Harcourt 1977). Microfoundations was already an established concern when Phelps convened the conference that led to the first book to bear the title "microeconomic foundations" (Phelps 1970). Although Lucas and Rapping (1970) participated in that conference and it ultimately proved to be a key event in the establishment of the representative-agent approach to microfoundations, the approach to microfoundations was by no means the approach of the standard narrative (see Hoover, Chapter 1). Phelps characterized the volume as a "new kind of microeconomics of production, labor supply, wage and price decisions" intended "to found a theory of aggregate supply, in that it sticks doggedly to the neoclassical postulates of lifetime expected utility maximization and net worth maximization, [while] it makes no appeal to faulty perceptions and it does not fundamentally require that price-setters economize on their decision-making time." The goal was to illuminate "some old problem areas in Keynesian economics" (Phelps 1970: 3).⁷

In their own contribution to the volume, Phelps and Winter tried to go beyond Walrasian, perfectly competitive, general equilibrium theory. While they recognized that "the agenda of unfinished business is enormous" (Phelps and Winter 1970: 336), they concluded that "a landing on the

non-Walrasian continent has been made. Whatever further exploration may reveal, it has been a mind-expanding trip..." (Phelps and Winter 1970: 337).

Nor were the concerns with microfoundations unique to the participants in Phelps's conference. The problem of the consistency of aggregate outcomes with individual optimization behavior also animated the so-called general disequilibrium analysis associated with the works of Don Patinkin ([1956] 1965), Robert Clower (1965, 1967), Axel Leijonhufvud (1968), Robert Barro and Herschel Grossman (1971, 1976), Edmond Malinvaud (1977), and others.

Although many economists before the 1960s understood microeconomics and macroeconomics as part of a division of labor in which separate questions were addressed with distinct tools and models, other economists from the very beginnings of the micro/macro distinction in the 1930s and, especially, in the period of the "neoclassical synthesis" starting in the mid-1950s, tried to link those fields through general equilibrium models (Weintraub 1974: 49; Leijonhufvud 1992: 28; Laidler 2008: 1–3).⁸ The basic idea was that one could start with individual behaviors and somehow aggregate them up to form aggregate relationships. These efforts faced major challenges: How could expectations be integrated into the models? Was there room for money? For unemployment? The technical problems were daunting, but resolving them would be essential if general equilibrium models were to be made practically useful to address the traditional concerns of macroeconomics – for example, the relationship of inflation and involuntary unemployment.⁹

E. Roy Weintraub nicely summarized the general equilibrium theory of the neoclassical synthesis:

For many years the division between microeconomics and macroeconomics has been detailed and condemned by economists, while the link between the two, general equilibrium theory, has suffered from a curious form of neglect. Although it has been well understood that macroeconomic structures could be "aggregated up" from general systems models, this insight remained so unworldly; concern for axiomatisation of production relations in a timeless barter world, while not uninteresting, cannot be the hallmark of a worldview flexible enough to cope with problems of inflation or involuntary unemployment.

Yet it is to the credit of various general equilibrium theorists that such important concerns were never so far from their analytic work that they ignored completely the macro implications of their models. ... If it is true, as many observe, that time and money are essential characteristics of actual economic systems, general equilibrium theory cannot be faulted for its inattention to these details, though its meager and sometimes confusing conclusions can be derided. (Weintraub 1974: 49)

The neoclassical synthesis brought with it a new interpretation of the history of macroeconomics. Keynes's *General Theory* and Keynesian economics were reduced to a special case of the general equilibrium theory, one that was "hardly worth even a footnote" (Weintraub 1974: 54). The most important macroeconomic issues were not seen as fundamental. While Patinkin ([1956] 1965), for instance, offered an integration of money into the general equilibrium model, such outcomes as involuntary unemployment could be explained only through *deviations* from normal functioning of market mechanisms – for example, either through wage rigidity in the labor market or the irrationality of workers who are off their supply curves.

Of course, the reduction of macroeconomics to a secondary role was not acceptable to all. Keynesian economists "have clearly understood why the neoclassical prism distorts the Keynesian vision" (Weintraub 1974: 54) and some, like Robert Clower and Frank Hahn among others, tried to build general equilibrium models in which Keynes was not a mere footnote (see Weintraub 1974: 54–6).¹⁰ Hoover (Chapter 1) argues that Barro and Grossman (1971, 1976) and Malinvaud (1977) "popularized the non-Walrasian models as aggregative, general disequilibrium models with representative agents" (p. 38), but this general disequilibrium theory is not linked closely to the microfoundations as understood by the standard narrative. Disequilibrium models provide but one example of how market clearing, representative-agent microfoundations eclipsed alternative approaches. Several economists represented in the Phelps volume approached the microfoundations of aggregate supply not through the representative-agent model, but through search models. Phelps (1970: 6) proposed to "picture the economy as a group of islands between which information flows are costly": the "island model," as it came to be known later, is one in which an individual producer cannot distinguish perfectly whether a signal of a higher price for his good indicates an increase in a relative price, which would stimulate him to produce more, or an increase in the general price level, which would leave his supply decision unaltered.¹¹

As Hoover (Chapter 1) shows, the great boom in explicit discussions of microfoundations is traceable to the early 1970s when a variety of competing approaches were in play. The Phelps volume was a key contribution. And it was reinforced by Weintraub's survey article in the *Journal of Economic Literature* (1977), subsequently developed into a book (1979), as well as by Geoffrey C. Harcourt's (1977) edited conference volume. Although Weintraub's article and book and Harcourt's edited volume focus on aspects of microfoundations different from those emphasized by Phelps,

the two names most closely associated with microfoundations in the journals are Phelps and Lucas, with Lucas's importance growing relatively over time (Hoover, Chapter 1, Table 1).

Although microfoundations had been a concern of macroeconomics from the early 1930s, even before the term "microfoundations" became current and even though competing approaches were on the table in the 1970s, the various threads of the microfoundations literature subsequently drifted apart and lost contact with each other.

Lucas's thread, as already mentioned, advocated that the optimizing behavior of individual agents determined the aggregate outcome. But the task was by no means trivial. The theorems of Hugo Sonnenschein, Rolf Mantel and Gerard Debreu in the early 1970s established that the restrictions that generate well-behaved individual demand functions do not constrain aggregate demand functions to exhibit the same properties (see Wade Hands, Chapter 3, and Rizvi 1994). The new classicals sidestepped the problem of aggregation either by imagining an economy composed of identical individuals or by assuming that there is one individual who represents the whole economy, so that the solution to the optimization problem of this *representative agent* gives the aggregate relationships in that economy. In fact, they adopted the representative-agent model from the optimal-growth literature of the 1960s.

Using such models, Lucas and others developed the characteristic conclusions of the new classical school, such as the ineffectiveness of monetary policy with respect to the real economy (see Hoover 1988). Policy ineffectiveness was widely regarded by Keynesians as a politically conservative conclusion. Initially, it was interpreted as a direct consequence of the rational-expectations hypothesis, which was then regarded as politically suspect. Later, economists came to see that the assumptions of flexible prices and perfect competition were the critical factors in the policy ineffectiveness proposition. Once a wedge had been driven between policy ineffectiveness and the assumption of rational expectations, the rational-expectations hypothesis was accepted by a wider spectrum of macroeconomists (see Duarte, Chapter 6). New Keynesians found that rational expectations did not rule out an important role for the government in stabilizing the economy.

The use of the representative agent was rarely, if at all, explicitly justified and despite the efforts by some macroeconomists to introduce heterogeneous agents into their models, it became the benchmark model that provides the framework for most mainstream business-cycle models of the present day. What is important to the theme of this volume is that the representative-agent framework proposes a particular way of relating microeconomics to macroeconomics – and it is neither the only way nor the