Part I

Introduction

It is always difficult to appraise current research in an area, especially in a technical area, for a non-specialist. Recent work on problems associated with the microfoundations of macroeconomics present severe difficulties since the literature is intrinsically integrative, albeit abstract. The particular set of abstractions, or models, have their roots in the separate concerns of microeconomists, general equilibrium theorists, macroeconomists, and monetary theorists and as such cannot be fully appreciated without a sense of how these areas have developed and interacted up to the present time.

In a discipline like economics, where progress can be identified with sequences of models each successively better suited to the current issues, but each always developing from a predecessor, an understanding of what is "modern" requires too an understanding of what is no longer "modern."

The basic structure of Part I represents what must be an imperfect attempt to trace the development and interlocking nature of two scientific research programs (in the sense of Lakatos), macroeconomic theory and (general equilibrium) neo-Walrasian theory. Since much that is currently being done in the various microfoundations literatures can be identified as the symbiosis of these two programs, their separate developments should be part of the mental baggage of modern economists.

In Chapter 1, then, a case is built that the set of problems being considered ramifies in a multitude of ways into the daily thinking of professional economists who believe themselves quite free of, and apart from, the arcane concerns of mathematical economists.

Chapter 2 examines the development of what is termed "neo-Walrasianism." Modern general equilibrium theory began in the 1930s and reached fruition by around 1960. Textbooks treat these issues, however, as though they occurred all at once, and all of a piece. In fact, they did not, and it is this which gave substance to the Keynesian revolution.

In Chapter 3 Keynes' system is examined, for it gave macroeconomics its new birth. Following others we shall identify at least two Keyneses, neither of whom is well established in the textbook versions of macroeconomics.

Chapter 4 examines the synthesis between neo-Walrasian methods and "Keynesian" approaches, and suggests how the modern Keynesian analysis was shaped by the strength of the neo-Walrasian research program.

Finally, in Chapter 5, the "caution" flags go up and the deviant voices of Clower and Leijonhufvud are heard to exclaim, *a propos* the misnamed "neoclassical synthesis," "But the emperor has no clothes!" Their attempts to redress the issues will appear as a motif thoughout Part II.

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Points of entry

To many economists there is a clear interrelationship between microeconomics and macroeconomics. If asked by a student to explain how micro profit maximization constrains a macromodel, the economist might describe aggregate supply as an aggregate production function, and the demand for labor as a derived demand which, under competitive profit maximization conditions, can be set equal to the real wage rate. If asked about the relation between the theory of consumer behaviour and the theory of the consumption function, the economist may produce a sophisticated utility maximization framework. Constraints involve income and wealth such that, for given tastes and prices, real consumption demand depends on real disposable income appropriately defined.

The microeconomic foundations of the aggregate demand for money can be similarly located in choice-theoretic portfolio analysis or inventory analysis. The demand for capital goods may be studied as part of firms' desires to maximize discounted net worth.

If the student wished to press further, there is a set of questions which could be developed at a higher level of abstraction. "How," it might be asked, "is it possible to generate labor market excess supply in equilibrium, when in microeconomics we were taught that excess demand was zero in equilibrium?" The standard answers here probably vary with the training of the instructor, but most economists would describe the difference between partial

equilibrium analysis and general equilibrium theory, and suggest that in a multi-market framework, disturbances or structural rigidities in one market may induce disequilibrium in another market. Thus perhaps a liquidity trap in the money market or an insensitivity of investment to the interest rate could produce the labor market unemployment. The various answers which would be given to the question would likely share the presumption that indeed unemployment *is* something whose existence needs to be explained. It is not often that microeconomic reasoning works away from equilibrium positions.

In a first pass at issues of the microfoundations of macroeconomics, roughly at the level of an intermediate theory course, economists teach (pretend to believe?) that microeconomic theory is wholly reconcilable with macroeconomics. At the graduate level, however, there is a professional's desire for more rigorous modelling, and consequently classes pay explicit attention to the macroeconomic implications of a well-specified general equilibrium system. An instructor might lecture on a sequence of general equilibrium models, each of increasing complexity. The students would come to understand how the assumptions of individual and firm behavior, and the distribution mechanisms which complete the circular flow, generate competitive equilibria. Optimality propositions, and comparative static results, would often be presented; differences in assumptions made about "kinds" of money and other assets would entail different final outcomes. After a discussion of the aggregation problem, individuals and firms would be aggregated to a several market model (usually goods, money, bonds, and labor) and the macroeconomic content could be traced directly to the microeconomic specifications.

There would be some discussion of the logical difficulties of this program with the micro-treatment of expectations, the weakness of the institutional description, aggregation problems, and the absence of monopoly elements. Other technical problems, like establishing existence, uniqueness, and stability of the microeconomic equilibrium, may be slighted as the argument speeds

toward the induced macro-model and its properties. Yet even in this more sophisticated pedagogy, there is an implicit affirmation of logical compatibility between what is generally accepted as standard microeconomics and what is generally accepted as standard macroeconomics.

Without *ad hominem* detours into the "pop" sociology of economics, it may still be worth while, in an informal manner befiting an introductory chapter, to consider why a belief in micro–macro consistency is shared by many economists.

For those economists who are applied microeconomists, their training involved the accumulation of a set of tools and approaches. Concepts of scarcity, choice, costs and benefits, and efficient outcomes are the content of standard analysis, and the microeconomic theory from which these concepts are derived is the central core of neoclassical theory. This theory has been, and continues to be, successful both in predicting novel facts and in structuring questions about economic life. It makes generating predictions tractable.

Consequently any question about microfoundations of macroeconomics which could conceivably vitiate neoclassical analysis would be strongly resisted. The benefits to be gained from the ability to handle anomalies might not at present compensate our science for the immense cost of not being able to answer questions which are handled in a now routine fashion. Further, the anomaly would have to be both generally recognized and perceived to be serious to even consider redirecting microeconomics. But even the few economists who argue that current microeconomics *does not generate* macroeconomics have been extremely shy in their attempts to convince their colleagues of the seriousness of their concerns.

For macroeconomists, the question is somewhat more pressing since accepting the current micro–macro linkages severely constrains macroeconomic modelling. There appears to be only one legitimate macroeconomic mode of discourse when conformability with general equilibrium theory is presupposed. Alternative macroeconomic theories, like those of the Post-Keynesians, fall outside the pale of legitimate discourse. Monetarist–fiscalist debates

must be carried on in an intellectual framework that practically ensures the audience that the debate will be reduced to one of "both sides are partially correct; it's all a matter of degree." Giving up the underpinnings of macroeconomic theory would grant hegemony to disparate interpretations of inflation, unemployment, growth, and distribution. Neo-Marxians and monetarists would argue about matters of practical policy with no common ground or shared presuppositions.

Finally, from the viewpoint of historians of economics and those who believe in progress and continuity within a discipline, arguments which suggest that microeconomics and macroeconomics are potentially inconsistent would cast a pall over the past forty years of intellectual history, since the issue is precisely the one debated in the early years of the Keynesian Revolution under the general label of Keynes vs. The Classics. Writing doctrinal history with an eye to progress and synthesis becomes difficult if progress was absent and synthesis is logically impossible.

For the three groups then, microeconomists, macroeconomists, and historians of economics, there are somewhat different points of entry into the microfoundations of macroeconomics literature, and somewhat different concerns will shape their questions and guide their intuition. Further, they each bring different preconceptions to the analysis and they are likely to construe similar arguments differently. When we understand these viewpoints, it will be an easier task to see the intellectual antecedents of current microfoundations work. It will thus be easier to assay the potential fertility of certain lines of argument, for the manner in which an economist approaches a particular problem will frequently determine the answers that emerge.

A microeconomic perspective

Much of the microfoundations literature rests on the shared perspective of microeconomists that economics is a study of constrained choice in a variety of circumstances. Leaving for the next chapter the historical development of these concerns, it will suffice here to indicate how this viewpoint has shaped the literature.

The world of the microeconomist is peopled with disaggregated individual units (households and firms) and guided by the specification of their decision calculus and resulting interactions. All economic activity leads to the ultimate satisfaction of the households' wants. Each household is a receiver of consumer goods and a provider of labor and capital services for which it is paid an income which constrains its ability to achieve specific levels of satisfaction. The theory of consumer behavior itself is a well-detailed and robust set of assumptions, propositions, and inferences which have led over time to various insights about both traditional market phenomena and observable behaviors not always studied in economic terms (e.g., fertility, education, etc.).

As a consequence of this ability to predict novel facts and relate them to an established disciplinary corpus, the theory of consumer behavior, at the microeconomic level, provides a ready source of modelling techniques potentially applicable to topics of a more highly aggregative nature. When these structures are linked to theories of the firm which elucidate the firm's decision calculus as it acts simultaneously in the supply side of the goods market and the demand side of the factor services market, it is clear that the concatenation of households and firms is a first approximation to the kind of economy that macroeconomics studies.

This circular flow analogy is indeed familiar to all macroeconomics students although it developed from the work of general equilibrium theorists. What is worth noting, however, is that while macroeconomics self-consciously attempts analysis of the economy as a whole, the general equilibrium approach to economic analysis, which studies the interdependent choice problem for various types of economic agents, shares a like concern for holistic reasoning. In particular, the microeconomic general equilibrium view would implicitly deny that aggregative *theorizing* could provide any significant insight that was *logically* unattainable from a more rigorous disaggregative approach.

To be sure, for empirical work one needs to aggregate at least to individual markets and probably beyond (for example, *the* labor market), but in principle no interconnection should appear in a

macromodel which is not already present in the underlying general equilibrium structure. For the microeconomists, macroeconomic analysis is at best a useful method for studying directly the problem of immediate concern. It is, under this interpretation however, merely a first step towards a more sophisticated and rigorous modelling procedure which would embed that problem in the disaggregated structure of the basic interrelated units.

For example, macro reasoning which attempts to establish the existence or non-existence of a "liquidity trap" would be useful in two ways: first, empirical studies would help determine whether the phenomenon is "observable" and thus worth explaining and second, aggregative reasoning could suggest the sectoral linkages that would probably be involved in any explanation. The theorist would not consider the phenomenon to have been explained until there existed reasonable and coherent assumptions about the behavior of, and interrelationships among, the atomistic agents which would generate the potentially observable behaviors. For the "liquidity trap," he would add money and bonds and future decision periods. The proposition to be established would be something like "what characteristics of this complicated world entail insensitivity of the demand for money to changes in the interest rate?"

One should not infer arrogance among general equilibrium theorists: their understanding of money, bonds, and intertemporal choice in a monetary economy will be shaped almost totally by the more sophisticated, although more aggregated understandings of macro-monetary theorists. No general equilibrium modelling directed to "liquidity trap" problems would gain assent if, for example, it were assumed that bonds could trade against goods in each period, or that money did not mediate in exchange.

What is being suggested is that for economists whose perspective is microeconomic, scepticism about macroeconomic analysis can only be removed by the process of embedding macroeconomic concerns in a reasonably complete and rigorous general equilibrium system in which the behaviors can be clearly identified and the linkages clearly understood. Explanations of money wage

changes in macroeconomic models which are based entirely on labor market excess demands, for instance, will be totally unsatisfactory, mere hand-waving, to the extent that households and firms are not involved and interrelated in the wage determination process.

In this fashion it may be imagined that both "pure" (theoretical) and "applied" (econometric) macroeconomists are scouts for the headquarters of general equilibrium theory; they bring back information about the outline and details of new terrain. Their reports are preliminary only and are not judged to be accurate until the maps are drawn to consistent scale and the headquarters staff can send a second scout party to a precise spot for a definite purpose.

But how do the macro predictions get generated from a general equilibrium structure? What is the internal logic of the approach? Full and detailed answers will have to be postponed for several chapters, but some of the ideas may be sketched. An economy is described by specifying the agents and their behavioral characteristics (preferences), and a state of the economy is characterized by the data, usually some set of prices and quantities, which generate agent behavior. If some state of the economy induces the agents to behave in a coherent manner, that state is said to be an equilibrium. That is, an equilibrium may be (for some models) some set of prices which will, were all agents to act taking those prices as given, generate market outcomes (agent interactions) that produce those same prices.

In this sense the existence of an equilibrium is equivalent to the possibility of pre-reconciled choice. Equilibrium is a set of plans such that (1) for each agent, its plan seems best to it, (2) all plans are consistent among agents, and (3) actions based on those plans induce a well-defined outcome.

If an equilibrium exists, it may be possible to describe its properties using model-extrinsic categories: it may be "efficient," it may involve a particular relationship between the price of bonds and the expectations which link the periods, etc. If the equilibrium is, in addition, robust in the sense that departures from equilibrium

set up forces to restore that equilibrium, then comparative static analysis can be applied. Thus it can be learned how, for example, the price of bonds, or the amount of money agents will wish to carry from period to period, will vary if the initial stock of money, or the initial structure of expectations, is changed.

These exercises are precisely the content of the standard macroeconomics which would work at a much more aggregative level to examine how an increase in the money supply, *ceteris paribus*, changes the level of real output in an economy. The specification of this exercise in general equilibrium language lays bare the implicit assumptions of the macroeconomic analysis and reveals the complex interactive structure that underlies the "causal" reasoning.

To a microeconomic theorist, then, a study of the microfoundations of macroeconomics is coextensive with general equilibrium analysis. Richer and more detailed specifications of the disaggregated inter-agent framework lead naturally to macroeconomic propositions. To the extent that those theorems replicate the structure revealed in a more aggregated, less "rigorous" macroanalysis, that macroeconomic proposition can be said to have been provided with a logical foundation.

The research program implicit here will be one of extension of some basic general equilibrium structures. Problems within this program involve the suitability of a particular disaggregated structure, the logical coherence of the various component pieces, and the interaction between the modes of reasonable new modelling and the internal logic of the existing models. The "microfoundations of macroeconomics" from this perspective are well-established and reasonably well-understood. Much of the work to be surveyed later is in this tradition, and it will be necessary later to examine it quite critically, for if there are logical defects in this research program, much past and current work has to be abandoned.

Perspective from macroeconomics

A macroeconomic theorist might perceive the microfoun-