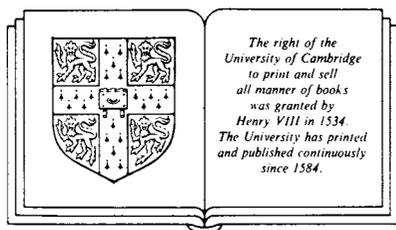


# Methodological foundations of macroeconomics: Keynes and Lucas

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# Introduction

My present aim, then, is not to teach the method which everyone must follow in order to direct his reason correctly, but only to reveal how I have tried to direct my own. One who presumes to give precepts must think himself more skilful than those to whom he gives them; and if he makes the slightest mistake, he may be blamed. But I am presenting this work only as a history or, if you prefer, a fable in which, among certain examples worthy of imitation, you will perhaps also find many others that it would be right not to follow; and so I hope it will be useful for some without being harmful to any, and that everyone will be grateful to me for my frankness. (Descartes, 1637, p. 21)

## 1.1 The crisis of macroeconomics

For many years macroeconomics has been in a state of crisis. Since the end of the sixties Keynesian macroeconomics<sup>1</sup> has been staggering under a series of attacks on many fronts: on the empirical side (instability of the Phillips curve, and generally of the parameters of Keynesian econometric models), on the theoretical side (absence or weakness of microeconomic foundations), and also in the area of economic policy (inadequacies of public intervention emphasized by the world economic crisis).

In the course of the seventies a new orthodoxy began to coalesce, particularly in the USA.<sup>2</sup> This was called ‘new classical economics’ as it was

<sup>1</sup> The Keynesian orthodoxy, embodied in the so-called ‘neoclassical synthesis’, gradually consolidated itself during the forties and became pre-eminent in the course of the fifties and sixties, first in the academic world and then even in the political milieu (where it became known as the ‘new economics’). The dominance of the ‘neoclassical synthesis’ did not remain unchallenged in that period; its validity was questioned mainly by the monetarists led by Milton Friedman, as well as by heterodox schools of Keynesian and/or radical orientation which did not accept the neoclassical component of this alleged synthesis.

<sup>2</sup> The famous Presidential Address to the American Economic Society, given by Friedman in 1968, may be seen as a watershed between the two periods. That paper announced the breakdown of the Phillips curve in its original Keynesian version, as well as what was to

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inspired by the aim of giving rigorous foundations to macroeconomic propositions on the 'classical' principles of general equilibrium. The impact of this school spread, as in the Keynesian case but with a shorter lag, from academic circles to public opinion and eventually to the political milieu, where it influenced macroeconomic policies adopted at the end of the seventies and at the beginning of the eighties.

During the eighties, however, the new orthodoxy has been increasingly questioned. A number of unsettled empirical, theoretical and methodological problems have gradually emerged together with significant differences and counterpositions among new classical economists.<sup>3</sup> At the same time there has been a new emergence of ideas referring back to Keynes. Such contributions open up a wide range of possible alternative research programmes, including hybrid forms crossing Keynesianism with new classical economics, more or less updated versions of the neoclassical synthesis, and new attempts to construct a macroeconomic theory able to restate the basic insights of Keynes in rigorous terms.

### 1.2 Methodology and economics

The macroeconomic debate is extremely complex and fragmented, and it covers methodological, empirical, theoretical and policy problems. Methodological issues play a decisive role in the debate since explicitly or implicitly they enter most arguments in a crucial way. Unfortunately confusions and misunderstandings often emerge precisely on methodological issues, and these make the scientific debate slippery and often barren. It is thus important to clarify concepts and problems involved in the methodological foundations of macroeconomics. That is one of the main aims of this monograph.

Methodological literature is not greatly esteemed by most economists. This attitude is partly justified, because there are contributions in this field which appear pedantic and pretentious; often they just mechanically import concepts from other disciplines (philosophy of science, epistemology, logic or natural science) which remain extraneous to the economic argument and hence sterile. But this should suggest a justified mistrust of bad economic methodology, not of economic methodology as such.

become the characteristic feature of the subsequent anti-Keynesian counter-revolution, i.e. the emphasis on the microfoundations of macroeconomic propositions on general equilibrium theory. However, in the early eighties, the profound differences between new classical economics and traditional monetarism became altogether clear (see chapter 10).

<sup>3</sup> A significant example is given by the theory of the equilibrium business cycle which is at the heart of new classical economics. In Lucas's own theory economic fluctuations are seen as essentially monetary, whereas in most recent theory, equilibrium business cycles are considered real (see chapter 10). A recent contribution by Lucas (1987) attenuates but does not eliminate this divergence.

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Economics aims to describe, explain and forecast the behaviour of economic agents, which crucially depends on expectations about the future behaviour of the relevant variables. The process of expectations formation depends in turn on the economic theory adopted by the agents and on its revision rules. At the very moment when we elaborate a theory or a model we have to make assumptions about the cognitive methodology adopted by economic agents (see e.g. Muth, 1961 and Hahn, 1973). We are thus bound to deal with economic methodology, whether we like it or not. Today this must be accepted as an established principle. In particular it is implicit in the literature on rational expectations, although there the use of this principle has often been reductive if not misleading.

Economic methodology should thus be conceived as a discipline entirely within the scope of economics. We might say that economic methodology and economic theory should be not simply juxtaposed but connected in a 'chemical synthesis'. This does not mean it may not be possible, and sometimes even opportune, to make excursions into methodologies of other disciplines, or into the general methodology of science, or into epistemology itself; but the particular demands of economics should never be overlooked.

### 1.3 Keynes and Lucas

Macroeconomics has come to an awkward crossroads. Several paths ahead look promising, but we do not know which one may carry us further. Some of the alternative routes have been only partially explored, others are barely glimpsed, others may yet be discovered. In order to find the right direction we must identify a wide spectrum of possibilities, whose extreme poles may be approximately represented by Keynes and Lucas.

A discussion of these two authors, though certainly limited, may go a long way towards establishing proper coordinates for choosing the most promising research programme in macroeconomics. It is preferable to analyse single authors, like Keynes and Lucas, rather than 'schools' which are always very difficult to define. It is not by chance that the choice falls on these two authors. The work of Keynes is still the main single point of reference, either positive or negative, for all the schools in macroeconomics. They still define themselves in relation to Keynes's ideas, either as a development of some version of his thought or as a restoration of some version of pre-Keynesian 'classical' thought. This implies perhaps that macroeconomics is not yet a mature discipline, since it has not managed to emancipate itself completely from its founding father. However, it is better to accept this reality than to claim a wishful 'maturity' which would misleadingly relegate Keynes to the history of economic thought. I believe that we still have to deal very seriously with his thought, and particularly

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with his methodological contributions, which only now can be completely appreciated.

As far as Lucas is concerned, there are many reasons for focussing attention on his thought. He is recognized as the intellectual leader of new classical economists,<sup>4</sup> who have in a way managed to weaken the dominance of Keynesian economics, and sometimes (particularly in the USA) to overcome it. He also developed a methodological approach, at variance with that of Keynes, putting in particular the emphasis on substantive rationality, equilibrium, demonstrative methods, and 'risk' (in the sense of Knight and Keynes). Lucas refines and organizes these methodological tendencies – which were already creeping into the 'neoclassical synthesis' – in a 'pure form', i.e. in a particularly coherent though extreme form. This makes it easier to evaluate the scope and limits of the 'classical' methodology, old and new.

As leader of the new classical school Lucas launched the most radical challenge to Keynesian macroeconomics. Friedman's monetarism shares with Keynes many theoretical and methodological premises which are rejected by Lucas. For example, according to Friedman (1968) the readjustment process in disequilibrium may last over a decade and profoundly affects the economic behaviour, whereas it is considered unimportant by the new classical economists either because it is thought to be instantaneous or because it is judged a non-intelligible process.

According to Lucas Keynes's contribution has been completely superseded, not only from the point of view of economic policy but also from that of theory and methodology. It is reduced to little more than a source of epigraphs: 'economists who find Keynes's style congenial will continue to use his writings as Dennis Robertson did Lewis Carroll's, but surely there is more to the cumulative nature of economics than this!' (Lucas, 1981, p. 276). Lucas has thus tried to launch a radical anti-Keynesian counter-revolution. Since this attempt has enjoyed a remarkable success, it is very important to assess the soundness of its key arguments and to see whether Keynes, after Lucas, still leads to a viable research programme.

### 1.4 Scientific paradigm and heuristic model

A thorough comparison of the scientific paradigms of Keynes and Lucas has to emphasize methodological problems. In fact both authors see the

<sup>4</sup> This is the prevailing opinion (see e.g. Tobin, 1980a and b, and Klamer, 1984). There are many other important representatives of the school such as Sargent, Wallace, Barro and Prescott. Lucas, however, is considered by many to have been particularly successful in providing a general framework, both conceptual and methodological, for this school of thought.

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essence of their own contributions, and of the contrast between the two research programmes, as mainly methodological. According to Keynes, economic theory must be conceived not as a doctrine but as a method. In his opinion the crucial error of classical theory lies essentially in its method, which cannot provide an answer to crucial problems like those raised by the Great Depression of the thirties (see e.g. Keynes, *General Theory*, from now on abbreviated GT). Lucas in turn agrees that the 'Keynesian revolution has been a revolution in method' (Lucas and Sargent, 1979, p. 296). New classical economists interpret their own counter-revolution in methodological terms, as a 'strategy of model construction' (see e.g. Townsend in Klammer, 1984, p. 85, and Taylor, *ibid.*, p. 172).

The comparison between the two theoretical points of view is simplified by a further important similarity. In each case a general model is developed to coordinate the set of models elaborated to cope with specific problems, and to suggest instructions for their proper use and for the construction of new ones. This general framework, which gives unity and an overall meaning to the set of specific models characterizing a certain theory, will be called the *heuristic model* of that theory.

It occupies an intermediate position between the two classical levels of Schumpeter's historiography: the *vision* and the *analytical model* (see Schumpeter, 1954, in particular pp. 41–2, 114, 561–2, 1171).<sup>5</sup> The heuristic model is a representation of the vision of a certain author in a sufficiently simplified and operative way to permit continuous direct control of the use, construction and revision of analytical models. Since its role is a strategic one in any research programme, our attention should be focussed on it whenever alternative theoretical paradigms are appraised. In fact, as soon

<sup>5</sup> The Schumpeterian distinction between 'vision' and 'analysis' has been very successful and has become common usage among economists. However, its interpretation has undergone an unconscious change as the line of demarcation between the two concepts has gradually shifted. In fact the semantic range of 'vision' has gradually broadened, while the semantic range of 'analysis' has gradually narrowed. This originated, in my opinion, from the growing spread of formalization in economics, and thus from the growing influence of the mathematical concept of analysis. Today an 'analytical model' is taken to mean a mathematical model having an analytical solution, whereas Schumpeter considered any model, in whatever language, as part of economic analysis. In particular Keynes's model, expressed in ordinary language in the first 17 chapters of the *General Theory* and summarized in the same language in chapter 18, is considered by Schumpeter as a typical example of economic analysis: 'the *General Theory* presented an analytical apparatus which the author summed up in chapter 18' (1954, p. 41; see also pp. 1171–84).

On the contrary, 'vision' is for Schumpeter only 'the first perception or impression of the phenomena to be investigated' which helps to 'single out the set of phenomena we wish to investigate, and acquire intuitively a preliminary notion of how they hang together' (*ibid.*, pp. 570 and 562). Today the term is used in the broader sense, borrowed by Kuhn, of a 'scientific paradigm' or in the analogous sense, borrowed by Lakatos, of a 'research programme'.

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as an analytical model is severed from its context it loses most of its meaning, whereas the pre-analytic vision often exerts no clear and direct influence on analytic models. The heuristic model provides the necessary bridge between the two poles, which gives a general meaning to the specific analytical models and clarifies how each of them is affected by the vision.

The conceptual cleavage between vision and analytical models is reflected by a disciplinary cleavage between the 'history of economic thought' and the 'history of economic analysis'. This dual gap should be bridged. The heuristic model is meant to play precisely this role.

The main purpose of this book is a comparison and appraisal of Keynes's and Lucas's heuristic models. My task is made less difficult because both of them are lucidly aware of the crucial role played by what I have called the 'heuristic model' and put a lot of effort into making it clear and explicit. The *General Theory* aims expressly to construct a new 'heuristic model' to set against that of the classical economists. Lucas in turn feels the need to make explicit the heuristic model that underlies the analytical models of the new classical economists (see Lucas and Sargent, eds., 1981, 'Introduction', and Lucas, 1987).

### 1.5 The structure of the book

This work is divided into two parts. In the first part (chapters 2–7) I will discuss a few crucial concepts involved in the recent debate on the foundations of macroeconomics and on the appraisal of alternative research programmes. In the second part (chapters 8–14) I will reconstruct and compare the heuristic models of Keynes and Lucas. Readers can thus choose between two possible itineraries. The first part can be seen as a methodological premise for the appraisal of the two alternative paradigms analysed in the second part; the second part can be seen as an emblematic application of the concepts discussed in the first. Both readings make sense. The first part, though not an end in itself, is more general than the second; in fact it could also be applied to research programmes different from those of Lucas and Keynes. However, the choice of these two authors is not at all arbitrary for the aims of the book, since in many respects they represent the two extreme conceptions among those hitherto developed in macroeconomics. It is thus particularly important to compare and appraise them, and this presupposes the detailed methodological investigation carried out in the first seven chapters.

The detailed structure of the book is as follows. The first part contains a fairly summary discussion of the basic methodological issues that haunt macroeconomics: equilibrium and disequilibrium (chapter 2), dynamic and structural instability (chapters 3 and 4), uncertainty and predictability

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(chapter 5), rationality and expectations (chapter 6). In these chapters I shall classify the main meanings of these concepts and explain the choice of an apparatus of definitions which I consider particularly useful for my purposes. In the seventh chapter I will try to throw some light on the concepts of causality employed by Keynes and Lucas in building their own heuristic models.

The second part contains a description and discussion of Lucas's heuristic model (chapter 9), reconstructed in the context of his general research programme (chapter 8). Then I will briefly consider the evolution of the new classical macroeconomics and of Lucas's own point of view with regard to the equilibrium business-cycle model (chapter 10). In chapter 11 I will describe the heuristic model put forward by Keynes in the *General Theory*, without giving a systematic account of his own research programme as it is too well known to require it. I will examine in chapter 12 the distinction between a 'monetary economy' and a 'barter economy' comparing it with the Schumpeterian dichotomy between 'circular flow' and 'development' in order to clarify the deepest foundations of Keynesian thought. In chapter 13 I will discuss the crucial features of Keynes's heuristic model in comparison with those of Lucas's heuristic model.

Chapters 8 and 11 may be skipped by a hurried reader possessing a good background in macroeconomics, but they may offer a few basic concepts for readers who need to refresh their memories. In addition these chapters make explicit my own interpretation of both Keynes and Lucas.

In the final chapter (chapter 14) I will sum up the main conclusions of the study. Keynes remains, after Lucas, a fundamental source of inspiration for macroeconomics, not particularly for his 'vision' of the capitalist system, nor for his strictly analytical contributions, but for his conception of macroeconomics as an autonomous and non-demonstrative discipline and for the methodological implications of his heuristic model.