

Getting rid of Keynes ?

A reflection on the history of macroeconomics

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Getting rid of Keynes? A reflection on the history of macroeconomics

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Abstract

The aim of this paper is to give an account of the unfolding of macroeconomics from Keynes to the present day. To this end I shall use a grid of analyses resulting from the combination of two distinctions. The first is the Marshall-Walras divide, the second is the distinction between Keynesianism viewed as a conceptual apparatus and Keynesianism viewed as a policy cause. On the basis of these distinctions, I construct two box diagrams. Box diagram No. 1 has complex general equilibrium and simple general equilibrium (i.e. macroeconomic) models as its columns, and the Marshallian and Walrasian approaches as its rows. Box diagram No. 2 has the Keynesian policy cause (justifying demand activation) and the anti-Keynesian policy cause (a defence of laissez-faire) as its columns, and the Marshallian and Walrasian conceptual apparatuses as its rows. This framework allows me to recount the history of macroeconomics as if it were a matter of filling in, step by step, the different slots in my two box diagrams.

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1 Introduction

The title of this paper springs from the obvious observation that the days when macroeconomics and Keynesianism were part and parcel of each other are gone. My aim in this paper is to reflect on this process of de-Keynesianisation.

Several papers dealing with the history of macroeconomics have been published in the recent years, the most renowned ones being those of Blanchard (2000) and Woodford (1999).¹ The originality of the present paper lies in my claim that in order to make sense of the evolution of macroeconomics it is both possible and fruitful to do more than just describe the different stages the discipline has passed through. It would be too pretentious to say that my paper provides a theory of the history of macroeconomics but it does aim to analyse it in a theoretical framework. This framework combines two distinctions. The first I will call the Marshall-Walras divide, the second is the distinction between Keynesianism viewed as a conceptual apparatus and Keynesianism viewed as a policy cause. To mention just one conclusion that will be reached using these distinctions, the emergence of new classical macroeconomics can be encapsulated as the replacement of Marshallian by Walrasian macroeconomics, on the one hand, and, on the other hand, as the appearance of models that are anti-Keynesian on the score of both their analytical apparatus and their view of policy.

The next three sections are concerned with preliminary matters, defining macroeconomics and explaining the two distinctions outlined above. In the subsequent sections, I reflect on the most salient episodes in the history of macroeconomics and locate them within the taxonomy that can be constructed on the basis of these two distinctions. I comment in turn on the IS-LM model, monetarism, so-called disequilibrium theory, new classical macroeconomics, the real business cycle approach, new Keynesian models, and the new neoclassical synthesis.

To conclude this introduction, a few remarks are worth making. First, my paper spans half a century and covers a wide range of models. This compels me to concentrate on the essential elements of each theory. I shall also presume that the reader is knowledgeable about the models that are being discussed. Not all the episodes discussed will be dealt with equally, IS-LM and dynamic-stochastic macroeconomics receiving more attention than the others. Second, my purpose in this paper is to assess the aim pursued in different macroeconomic models, and not to evaluate whether these aims have been achieved. Third and finally, my paper proposes a classification scheme. Constructing taxonomies implies making choices, which can always be contested for one reason or another. Hence, my paper ought to be judged on whether it allows making some order in a disordered world beyond the possible objections that can be addressed to my classification of any of the models considered.

¹ Other articles are: Blinder ([1988] 1997), Danthine (1997), Drèze (2001), Hairault (1999), Leijonhufvud (2006a), Lipsey (2000), Mankiw (1990, 2006), Snowdon and Vane (1996), van der Ploeg (2005).

2. Defining macroeconomics

Macroeconomists have never paid much attention to the definition of macroeconomics. When in need of a definition, they content themselves with short straightforward statements. For example, both Woodford (1999) and Blanchard (2000) define it as the study of fluctuations. To me, such a definition is too limited. It may well fit the current practice of macroeconomists but it amounts to claiming that everything that was considered to be macroeconomics label before the development of real business cycle models does not belong in the field of macroeconomics, a rather weird point of view. A more elaborate definition is thus needed. Mine is based on the following five criteria.

1. Macroeconomics studies an economy as a whole; therefore it belongs to general equilibrium theory;
2. macroeconomics is concerned with simplified general equilibrium models;
3. macroeconomics is formalised: it consists of mathematical models;
4. macroeconomics is concerned with policy issues and aims at providing practical macroeconomic policy advice;
5. macroeconomics pursues an applied purpose and its models are geared towards a confrontation with the data.

Several comments are in order. First, by general equilibrium theory I mean any theory that is concerned with the economy as a whole rather than just with parts of it. The usual view to the contrary notwithstanding, general equilibrium theory should not be equated with the Walrasian research programme. General equilibrium models belonging to other traditions (e.g. Sraffian theory) cannot be excluded. So, it is not because macroeconomics is a subset of general equilibrium theory, that it is necessarily Walrasian. On the contrary, I shall argue that during the first decades of its existence macroeconomics was not so. Of course, it would be preposterous to claim that the Marshallian and the Walrasian general equilibrium traditions have the same status. Only the second has a fully-fledged existence to the point of having become the cuckoo in the nest. Marshallian general equilibrium theory, although stoutly defended by authors such as Clower and Leijonhufvud ([1975] 1984) or, more recently, Colander and associates (Colander 1996, 2006), has hardly taken the forefront. However, it exists in a more or less hidden way. By this, I mean that some models exist, which are presented simply as non-Walrasian but emerge as Marshallian once the criteria for differentiating the Walrasian and the Marshallian approaches have been set out. This claim will be justified below.

Second, two types of general equilibrium models can be distinguished which, for lack of a better appellation, I shall brand as ‘complex’ and ‘simple’ (and for that matter extra-simple!). Walras’s model in his *Elements of Pure Economics* (1954) and the Arrow-Debreu model

(1954) constitute the pillars of the complex type. Macroeconomic models constitute the second type. They comprise a small number of variables. They study a few markets, possibly named after those markets that are deemed to be the most important in the real world. They deal with aggregates by reasoning in terms of representative firms or agents. They may include a few institutions, such as the government and the central bank. The rationale behind these simplifications lies in items four and five of my definition: these models are geared towards addressing policy issues, such as the level of employment, national output, inflation, government deficit, the effects of changes in the money supply, etc. They claim to be empirically relevant and to give results, which can be tested against reality.

I admit that my view that macroeconomics is a sub-category of general equilibrium analysis may look odd at first sight. In so far as of general equilibrium analysis is considered part of microeconomics, as it is usually the case, it follows that macroeconomics ought to be considered a branch of microeconomics! This confusing assessment could have been avoided had the terminology suggested by Frisch (Frisch 1933) when he introduced the term of macroeconomics been adopted. According to Frisch, the subject matter of macroeconomics is “the whole economic system in its entirety” while microeconomics is defined as concerned with individual optimizing planning. In this conception, general equilibrium theory is definitely macro and not micro. Unfortunately, Frisch has not been followed. The scope of microeconomics has become wider as it grew to cover models of both particular markets and of the economy as a whole. By the same token, the term macroeconomics has received a narrower meaning.

As to my third criterion, I do not want it to be a bone of contention. It is introduced just as a matter of convenience to separate non-formalised studies of the economy as whole (as in, for example, the writings of classical political economists) from the later formalised approach to this topic, which is the sole object of my analysis. Adopting it permits me to avoid having to make clear that I am referring to ‘modern’ as opposed to ‘old’ macroeconomics.

Fourth and finally, my definition is not concerned with substance. Consideration of the privileged object of analysis is useful for separating different phases in the development of macroeconomics but it should not be taken as a criterion for defining the discipline. It is, however, worth looking at the type of issues with which macroeconomists are primarily concerned. It then appears that the field started with one overriding preoccupation, to explain the phenomenon of mass unemployment. In contrast, the new classical revolution has replaced this object of analysis with the study of the business cycle.

3. The Marshall—Walras divide

It is widely admitted that Marshall and Walras differed sharply in terms of methodology.² Yet, co-existing with such a judgement is the view that when it comes to contents the two authors are very close.³ Marshall's partial equilibrium analysis and Walras' general equilibrium analysis are considered complementary approaches. In contrast, I want to claim that the Marshallian and the Walrasian approaches constitute two alternative research programmes within the neoclassical school of thought. It is beyond the scope of this paper to present a full analysis of their differences.⁴ For my purpose what matters is the account of the working of the economy underpinning each of them.

In the general equilibrium literature, the notion of an economy is usually understood in a narrow sense as referring to a list of agents (with their endowments, preferences and objectives), a list of commodities and a list of firms (with their ownership structure and technical constraints). This account is, however, incomplete due to its silence on the subject of the functioning of the economy. Such a neglect is due to the fact that the task usually assigned to general equilibrium theory is to analyse the existence, uniqueness, stability and welfare characteristics of the equilibrium of a given economy at one point in time and over time. However, the theoretical investigation should not be stopped at this stage. The economy whose equilibrium is discussed ought also to be depicted as a social system, comprising a minimal set of institutions, trade arrangements, rules of the game, and means of communication between agents. I propose to use the notion of an economy in a broader than usual sense to include these institutional features. My claim is then that the Marshallian and the Walrasian economy are two distinct objects.

The Walrasian economy

One of Walras's strokes of genius was to have started his analysis by studying an entire economy at once, rather than a section of it. Take his two-good model. It bears on a full economy, albeit the simplest one that can be conceived of, rather than on a market understood as a fraction of an economy. This was a counter-intuitive methodological decision. Intuitively, most people would rather take a stepwise approach consisting of first studying the functioning of an isolated, typical market, while relegating the study of the interrelationship of markets, the piecing together of the results of partial analysis, to the second stage of the enterprise.

² As noted for example by Negishi, "Marshallian models are practically useful to apply to what Hicks called particular problems of history or experience. On the other hand, Walrasian models are in general not useful for such practical purposes. ... Walras' theoretical interest was not in the solution of practical problems but in what Hicks called the pursuit of general principles which underlie the working of a market economy" (Negishi 1987: 590).

³ This is the view put forward by Hicks. See Hicks ([1934] 1983: 86).

⁴ For a more in-depth examination, see (De Vroey 1999a, 2006). For alternative accounts of the opposition between the Marshallian and the Walrasian approaches, see Hoover (2006a, 2006b) and Leijonhufvud (2006b).

The distinctive feature of the Walrasian economy is the presence of the auctioneer, a fictive agent announcing prices and changing them until a state of equilibrium is obtained. While most Walrasian economists accept this fiction only grudgingly, for my part I am willing to go as far as identifying the Walrasian approach with the presence of the auctioneer.

Let me now evoke the implications of adopting the auctioneer hypothesis. First, in an auctioneer-led economy, agents do not need to hold information about excess demand functions and their underpinnings. As stated by Kirman, “assuming the Walrasian auctioneer, little information is needed by individual agents; the information has all been processed for them” (Kirman 2006: XV). Second, adopting the auctioneer hypothesis amounts to considering that at each trading round the equilibrium is arrived at in logical time, i.e. instantaneously. Third, whenever the auctioneer assumption is made, price flexibility is compelling. As Lucas points out, once it is admitted that the auctioneer is an artefact introduced to dodge the thorny problem of price formation, it makes little sense to impede it from doing the job of bringing prices to their equilibrium values (Lucas 1987: 52). Fourth and finally, the auctioneer hypothesis and imperfect competition run counter each other. This follows from reflecting on the communication structure of an auctioneer-led system. The auctioneer economy is a set of bilateral relationships between the auctioneer and isolated individual agents. Before the attainment of equilibrium, agents’ exclusive social link is with the auctioneer. They do not interact and communicate between themselves. As a result, whenever a given agent makes a trading offer by responding to the prices announced by the auctioneer, he or she does not know how many other agents are making a similar offer. An agent can be in a monopolistic position whilst being unaware of this state of affairs and hence incapable of taking advantage of it! The same point can be made by looking at things from the information point of view. In an auctioneer economy, agents are supposed to hold no knowledge about market excess demand functions. This feature runs counter to the central trait of monopoly or oligopoly theory that the agent holding market power is supposed to know the objective demand function for the good it is selling. Hence the tâtonnement set-up itself guarantees the ‘perfectness’ of competition, whatever the possible monopolistic factors that may be present in the economy. To conclude this point, Walrasian theory and price rigidity, on the one hand, and Walrasian theory and imperfect competition, on the other, are incompatible bedfellows. This is a direct result of the adoption of the auctioneer assumption.⁵

A final aspect to be considered is whether a Walrasian economy is monetary. For the sake of differentiating the Walrasian and Marshallian approaches, it suffices to note that the presence

⁵ A full realization of the incompatibility between the auctioneer and the existence of rigidities had to wait until models introducing rigidity into a Walrasian economy (a line of research that will be discussed in Section 8 below) were proposed.

of money in Walrasian theory is at best problematic while, as will be seen, it is compelling presence in the Marshallian approach.⁶

The Marshallian economy

By extrapolating from the institutional set-up on which Marshall's partial equilibrium analysis is based, we can reconstruct the trade technology that would have underpinned his general equilibrium analysis had he been able to construct one.

The central feature of a Marshallian economy is that it comprises separate markets, each of which is a separate locus for the formation of market equilibrium. Unlike Walras, Marshall assumes that production occurs in advance of trade. Thus we have a sequence economy with input markets taking place in advance of goods markets. Households enter the goods markets with an income originating from the sale of services in the factors markets and the distribution of profits from earlier market days.

Another feature of the Marshallian economy lies in its monetary character. Money is present from the beginning of Marshall's analysis of the market. In fact, it forms part of the definition of a market, since this is defined as an institutional arrangement whereby a given good is exchanged for money.

The price formation process occurs without auctioneer. As a result, the above-mentioned implications are absent as well. The banning of rigidity and imperfect competition proper for the Walrasian economy is absent from the Marshallian. As to an alternative price formation process, two distinct scenarios are to be found in Marshall's writings. The first, which is conditional on the assumption of a constant marginal utility of money, permitted him to represent the attainment of equilibrium as the result of a bargaining process between agents. It involves trial and error, and exchanges at 'false prices', which makes the scenario relatively realistic. However, since this assumption cannot be generalised, Marshall had to fall back on the assumption that agents are so well informed about market conditions that they are able to mentally reconstruct market supply and demand functions.

The two meanings of the 'non-Walrasian' modifier

Finally, I need to introduce one further distinction concerning the Walrasian approach. Walrasian models departing from the Walrasian canonical model (as set out in Walras's *Elements* or in the Arrow-Debreu model), for example because they introduce price rigidity or imperfect information, have been branded 'non-Walrasian'. Such terminology is unfortunate because these models are part of the Walrasian approach as far as all their other traits are

⁶ Ostroy states, "By introducing money after he had completed his theory of exchange, Walras clearly made monetary phenomena an optional ad-on rather than an integral component of the mechanism of exchange" (1992: 784). The same point has been made repeatedly by Hahn. "There is nothing we can say about the equilibrium of an economy with money which we cannot also say about the equilibrium of a non-monetary economy, [that is] the money of this construction is only a contingent store of value and has no other role" (Hahn1973: 160).

concerned. In other words, they should be considered ‘quasi-Walrasian’. It would have been preferable to reserve the ‘non-Walrasian’ modifier for characterising models that differ radically from the Walrasian approach. Since changing an established terminology is difficult, my way out is to draw a distinction between a weak and a strong understanding of this modifier. A model will be called non-Walrasian in the weak sense if it features an equilibrium outcome different from Walrasian equilibrium while still resting on the Walrasian institutional set-up as described above and centred on the auctioneer artefact. In a model that is weakly non-Walrasian, the departure from the canonical Walrasian model is well circumscribed; it pertains to a single element while the others remain as they are in the canonical model. For example, in some general equilibrium search models, it is assumed that the auctioneer continues to fix the equilibrium price vector while the search for partners is left to the agents. In contrast, a non-Walrasian model in the strong sense is a model where the equilibrium is non-Walrasian and, on top of this, the institutional set-up is radically different from the Walrasian set-up. If my above distinction between the Walrasian and the Marshallian economy is accepted, imperfect competition models ought to be branded as non-Walrasian in the strong sense.

The distinctions between the two ways of engaging in general equilibrium theory and between the Marshallian and the Walrasian approaches are combined in a box diagram in Table 1.⁷

Table 1. Box diagram No. 1

		Two types of general equilibrium models	
		Complex models	Simplified models
Two distinct neoclassical approaches	The Marshallian approach		
	The Walrasian approach	- <i>Walras's</i> Elements of Pure Economics	

4 The meaning of the Keynesian modifier.

What exactly should be understood by the widely used modifier ‘Keynesian’? This is a question that is seldom addressed. In my opinion, the basic distinction that needs to be made here is between Keynesianism as an analytical apparatus and Keynesianism as a policy cause.⁸

Let me start with the policy dimension. Here, the ‘Keynesian’ modifier is used with reference to Keynes’s motivation to write the *General Theory*, bringing out market failures that state

⁷ At the outset of my story, the only slot filled is the lower-left one, occupied by Walras’s theory.

⁸ A similar distinction is proposed by Blinder when claiming, “the division of Keynesian economics into positive and normative component is central to understanding both the academic debate and its relevance to policy”. (Blinder ([1988] 1997: 112).

interventions would be able to remedy.⁹ The opposite standpoint or the anti-Keynesian policy cause is the view that the unfettered working of competition will lead the economy to the best attainable position. The existence of such a divide is for example acknowledged by Lucas: “In economic policy, the frontier never changes. The issue is always mercantilism and government intervention vs. laissez faire and free market” (Lucas 1993: 3). More narrowly, the Keynesian standpoint can be equated with a trust in the efficiency of stabilisation policies and the anti-Keynesian standpoint with a belief in the inefficiency of such policies.

I now turn to the methodological dimension. I take it that the IS-LM model gives a fair rendition of Keynes’ reasoning in the *General Theory*. Therefore, by a ‘Keynesian methodology’, I mean the use of the IS-LM model. The latter, I will argue below, has a definite Marshallian lineage. So, we have a Marshall—Keynes—Hicks conceptual apparatus. Turning now to the non-Keynesian method of studying an economy, two possibilities will have to be considered. First, we will encounter models that are not ‘Keynesian-Hicksian’ but are nonetheless part of the Marshallian approach. One type of such models, which will be subsumed under the name of the ‘Marshall-Chamberlin lineage’, will play an important role in my account of the unfolding of macroeconomics. The second possibility of an alternative to the Keynesian way of positing issues is of course the Walrasian methodology.

By combining the policy and the methodological dimensions we get a second box diagram, comprising eight slots (see Table 2). First, authors and models can be Keynesian on both the policy and the methodology score (box 1). In this case, the Keynesian modifier is unambiguous.¹⁰ Symmetrically, we might conceive of models that are completely anti-Keynesian (boxes 4, 6 and 8). Next, there are intermediate cases, where the two dimensions split. Models to be placed in box 2 are Keynesian in the methodological sense yet anti-Keynesian in the policy sense. Models in boxes 3, 5 and 7 are Keynesian in the policy sense but non-Keynesian in the methodological sense.

⁹ Market failures are defects in the supposedly self-adjusting market forces. They ought to be viewed as more serious flaws than imperfections. I surmise that Keynes refrained from adopting the imperfect competition line that was developing in Cambridge at the time he was writing because he wanted to discuss system failures deeper than imperfections.

¹⁰ Whenever I use the Keynesian modifier *tout court*, it refers to this case.

Table 2. Box diagram No. 2.

		Policy cause standpoint	
		Justifying demand activation	Defending laissez-faire
Conceptual apparatus	<u>Marshallian macroeconomics</u> - The Marshall-Keynes-Hicks lineage	1	2
	- The Marshall-Chamberlin lineage	3	4
	<u>Walrasian macroeconomics</u> - Walrasian models	5	6
	- non-Walrasian models	7	8

5. The emergence of macroeconomics

As the result of my narrow definition of macroeconomics, I view its rise as the result of a three-stage process. Keynes's *General Theory* constitutes the first stage, Hicks's IS-LM model the second, the emergence of econometric models the third step.

That Keynes's *General Theory* was the foundation stone for the emergence of macroeconomics is of course undeniable. Its aim was to elucidate the causes of the phenomenon of mass unemployment that affected all economies during the Great Depression. This was a time of great disarray with no remedy at hand to fix the ailing economic system. The general confusion did not spare academic economists, who were torn between their expertise and their guts. According to economic theory, unemployment must have been caused by too high real wages and decreasing them was the remedy. Yet their instinct told them that this was untrue and that the remedy lay in state-induced demand activation. Keynes's book, which was mainly addressed to his fellow economists, aimed at solving this contradiction by providing a theoretical basis for economists' gut feelings. The path to be taken to this end was to generalise Marshallian theory, which was exclusively concerned with partial equilibrium analysis, as to enable it to address issues related to interdependency across markets.¹¹ Keynes's hunch was that unemployment, though a labour market manifestation, had its roots in other sectors of the economy, specifically the money market or finance. Therefore, the study of the interdependency across markets became crucial. Of course, a

¹¹ As noted by Friedman, "In one sense, his [Keynes's] approach was strictly Marshallian: in terms of demand and supply. However, whereas Marshall strictly dealt with specific commodities and 'partial equilibrium', Keynes proposed to deal with what he called 'aggregate demand' and the 'aggregate supply function' and with general not partial equilibrium" (Friedman [1989] 1997: 8).

theory geared to such a purpose, Walrasian general equilibrium theory, existed. Yet Keynes had a poor opinion of it, and viewed it as lacking any merit.¹²

Keynes ended up proposing a theory where involuntary unemployment — a state of affairs where some people are willing to participate in the labour market at the given wage or even at a lower wage yet are unable to follow through on this plan — is due to a deficiency in aggregate demand. While his central aim was to demonstrate the logical existence of involuntary unemployment, his book was kaleidoscopic, mingling several threads of reasoning, which were barely reconcilable. In spite of its obscurity, the book received a positive reception, especially from young scholars who were craving for theoretical novelty. At the time of its publication, the pressure to produce a new theoretical framework that might account for the obvious dysfunctions in the market system was such that dissenting voices had little impact. Nevertheless, the perplexity as to the central message of Keynes' book was great, even amongst his admirers. Its central message was clarified when a session of the Econometric Society Conference was devoted to the book. Meade ([1937] 1947), Harrod (1937) and Hicks ([1937] 1967) gave three distinct papers about it (see Young 1987). All three saw it as their first task to reconstruct the classical model in order to assess whether Keynes's claim that his model was more general than the classical was right. They all concluded against Keynes's claim. Their interpretations were also rather similar. However, one of the three papers came to prominence, Hicks's piece, containing the first version of what was to become the IS-LM model. The reason for its success surely lay in its ingenious graph, allowing the joined outcome of three different markets to be represented in a single graph. This allowed Keynes's reasoning using 'models in prose' to be transformed into a simple system of simultaneous equations, so that it became comprehensible to working economists.¹³

The third and final stage in the emergence of macroeconomics consisted of transforming qualitative models into empirically testable ones. An author who played a decisive role in this respect is Jan Tinbergen. Like Keynes, he was a reformer, motivated by the will to understand the Great Depression and to develop policies that would impede its return. Tinbergen's (1939) League of Nations study of business fluctuations in the US from 1919 to 1932 can be pinpointed as the first econometric model bearing on a whole economy. The second pioneer

¹² Clower quotes an extract of a letter from Keynes to Georgescu-Rodan, dated December 1934 and running as follows: "All the same, I shall hope to convince you some day that Walras' theory and all the others along those lines are little better than nonsense!" (Clower [1975] 1984: 190).

¹³ In his book, *Fabricating the Keynesian Revolution*, the main gist of which is that Keynes and his predecessors stand in a relationship of continuity, Laidler implicitly makes the same claim when he acknowledges that a break occurred shortly after the publication of the *General Theory*: "IS-LM itself represented a synthesis, albeit a very selective synthesis, of theoretical ideas which long antedated its appearance, and which had underpinned the policy attitude in question. The model was, nevertheless, logically self-contained; it could be, and soon was, taught independently of the literature in which it had its roots. IS-LM thus seemed to embody a revolution in economics, in the sense that an old order had been swept away and replaced by something brand-new" (Laidler 1999: 324).

piece of macroeconomics econometrics was Larry Klein's *Economic Fluctuations in the United States 1921-1941*, published in 1950 for the Cowles Commission. In his celebrated book, *The Keynesian Revolution*, Klein (1948) had commented that Keynes' concepts were crying out for a confrontation to the data. With other colleagues, he played a decisive role in implementing this insight.

In this way, the three constitutive elements of macroeconomics came into existence. Very soon macroeconomics became a new and thriving sub-discipline of economics. Its hallmark is that it emerged as the daughter of the Great Depression. Without the Great Depression, macroeconomics would not have seen the light of day, at least not with its specific features. Its overarching aim was to highlight market failures that could be remedied upon by state action. So, from the onset, it had a reformist flavour. It was more to the left — albeit centre-left rather than hard-left — than microeconomics. Unemployment — and in particular involuntary unemployment — was its defining element. Macroeconomists had, as it were, stolen the theme of unemployment from labour economists.

6. IS-LM macroeconomics

The IS-LM model needing no introduction, let me examine at once how it fits within my taxonomy. I start with the policy dimension. The IS-LM model allows a confrontation between two regimes, the classical regime, where wages are flexible and the Keynesian regime, where nominal wages are rigid. Therefore it could be argued that the IS-LM model can be used in support of both the Keynesian and the anti-Keynesian stance. This is true in principle. However, during the heydays of the IS-LM model in the 1950s and 1960s, most of its users were firmly convinced that the Keynesian sub-model was the right one (i.e. was descriptively true), while the classical model served as a foil. Hence my claim that at the time the IS-LM model was subservient to the Keynesian policy cause.

Turning to the methodological aspect, the issue to be addressed is “Is the IS-LM model Walrasian or Marshallian from a methodological point of view”? My answer is that it is Marshallian, its frequent characterisation to the contrary notwithstanding.¹⁴ Let me start by asking why it is that the IS-LM is often characterised as Walrasian. A first reason is the lack of awareness of the existence of the Marshall—Walras divide. As a result, general equilibrium is equated with Walrasian or neo-Walrasian theory. Such a stance is inappropriate as soon as it is admitted that the Walrasian approach is not the only way of doing general equilibrium analysis.

¹⁴ See e.g. Vercelli (2000). This view that the IS-LM model is Walrasian is also taken for granted in several of the contributions to the Young and Zilberfarb (2000) volume on IS-LM.

A second reason is that Hicks, the initiator of the IS-LM tradition ([1937] 1967), is often considered a Walrasian economist – at least, he supposedly was at the time he wrote “Mr. Keynes and the ‘Classics’”. This was also the period during which he was working on *Value and Capital* ([1939] 1946), which is often and rightly credited with having revived Walrasian theory. Hence the conclusion that IS-LM must be Walrasian. The snag, however, is that *Value and Capital* mixes Walrasian and Marshallian elements (actually it started the obscuration of the Marshall-Walras divide). In my opinion, Hicks was never more than a half-hearted Walrasian. He may well have considered that Walrasian theory opened a window on new horizons ([1979] 1983: 358), yet he always read Walras through Marshallian glasses.

So there is no a priori reason for considering that the IS-LM model is Walrasian. In fact, I have never seen any justification of such an assertion. On the contrary, whenever the issue of its characterisation is taken in earnest, it turns out that it definitely leans towards the Marshallian approach. The following factors explain why.

The structure of the economy

A Walrasian economy constitutes a single market encompassing every commodity and all agents, with the equilibrium contract bearing on all commodities, and reached in one stroke. In contrast, a Marshallian economy is composed of markets that function separately, each of them being an autonomous locus of equilibrium. Against this divide, it is clear that the IS-LM model belongs to the Marshallian approach.

Walras’s Law

When looking at whether Walras’s Law is verified in IS-LM models, it turns out that it is in some models (e. g. Modigliani 1944) but not in others (Klein 1948). A model that allows Walras’s Law to be contradicted cannot be Walrasian. In contrast, in a Marshallian economy it is conceivable to have one market in disequilibrium for reasons linked with the sequential character of its functioning (see De Vroey 1999b).

Expectations

Since Hicks’s recasting of Walrasian theory in an intertemporal framework, expectations have received pride of place in the Walrasian approach. In contrast, as often noted (e.g. King 1993), a defect of the IS-LM model is that it has little room for expectations. To me, this lack is due to the stationary equilibrium concept underpinning the Marshallian approach (cf. De Vroey 2006). This conception of equilibrium assumes that the economic data remain constant over the period of analysis, except for shocks that are scarce and reversible. For, if shocks come as a total surprise, if their impact is well circumscribed (so that all the other data of economy remain unchanged), and transitory, why on earth should expectations play any central role in the analysis?

Dynamic analysis

Expectations and dynamics go hand in hand. The first generation of IS-LM models was totally static. As noted by Blanchard (2000), progress was made in this respect by authors such as Modigliani as far as consumption and saving are concerned, Jorgenson for investment, and Tobin for financial decisions. Lucas and Rapping when developing their 1969 model had in mind to make progress in the same direction by dynamising the production/employment sector. What makes these developments Marshallian is their partial equilibrium framework. They break the economy up into separate sectors to which dynamics is applied in isolation. Walrasian dynamic analysis, by contrast, is concerned with the economy as a whole.

Microfoundations

The IS-LM model has often been criticised for its ill-specified micro-foundations. But then the attention given to micro-foundation is typical of the difference in method between Walras and Marshall. While the former insisted on constructing them, Marshall found it unnecessary to develop them rigorously. The IS-LM model is typically Marshallian in this respect.

Time

The IS-LM model is always presented as a short-period model. This raises the semantic issue of whether it pertains to a given market day or to a short span of successive markets. Be this as it may, the distinctive feature of the IS-LM model with respect to the time dimension is the methodological decision to analyse the short period in isolation from the long period. This, again, is a typically Marshallian point of view; the Walrasian standpoint is quite different. Here, a specific point in time equilibrium is associated with a precise trade round. With some twist in language, this point in time outcome can be called a short-period equilibrium and the intertemporal equilibrium a long-period equilibrium. Still, in the Walrasian approach the short period equilibrium will never be severed from the long period.

Price formation

In the Walrasian set-up, a single price-formation process is at work with prices being announced by the outside auctioneer and changed until equilibrium is reached. This scenario is wanting although it has the merit of existing. However, I have never seen authors claim that in the IS-LM model prices are formed under the auspice of an auctioneer. This is another sign of the Marshallian character of the IS-LM model.

Taken separately, each of the above arguments might fail to win the day. Collectively, in my opinion, they surely do so. This conclusion is in accordance with the implicit view taken by most defenders of IS-LM macroeconomics (e.g. Lipsey 2000: 69), who firmly believe that their approach is poles apart from Walrasian microeconomics.

To conclude, I view the IS-LM model as a simplified Marshallian general equilibrium theory. Admittedly, is a messy model compared to the standards of rigour witnessed in Walrasian

theory. This can be related to an anomaly in its origin. Logic would have it that the simple model would come to emerge as the simplification of a pre-existing complex model (as happened in the emergence of Walrasian macroeconomics). However, no complex Marshall general equilibrium model existed that could be simplified.

If this conclusion is accepted, locating the IS-LM model within my taxonomy is an easy task. As far as box diagram No. 1 is concerned, it marks the rise of Marshallian macroeconomics (see Table 3, where I also introduce the Arrow-Debreu model, the emblematic neo-Walrasian model). As far as box diagram No. 2 is concerned, the IS-LM model marks the heydays of Keynesian macroeconomics, the period where the Keynesian modifier meant both an analytical apparatus and the defence of an activist policy view (and hence was unambiguous). It is firmly located in the top left row (see Table 4).

Table 3. Box diagram N° 1

		Two types of general equilibrium models	
		Complex models	Simplified models
Two distinct neoclassical approaches	The Marshallian approach		- <i>The IS-LM model</i>
	The Walrasian approach	- <i>Walras's Elements of Pure Economics</i> - <i>The Arrow-Debreu model</i>	

Table 4. Box diagram N° 2

		Policy cause standpoint	
		Justifying demand activation	Defending laissez-faire
Conceptual apparatus	<u>Marshallian macroeconomics</u> - The Marshall-Keynes-Hicks lineage	- <i>The IS-LM model</i>	
	- The Marshall-Chamberlin lineage		
	<u>Walrasian macroeconomics</u> - Walrasian models		
	- non-Walrasian models		

7. Monetarism

Monetarism is associated with the work of Milton Friedman and his criticism of Keynesian activist policy. At a certain juncture, it was believed that it might become a new paradigm,

rival to the Keynesian (see Johnson 1971). At present, a different view prevails. For example, Woodford thinks that monetarism has won the day by bringing monetary policy and expectations to the forefront, yet he considers that, from a methodological viewpoint, it has been absorbed within the Keynesian paradigm (Woodford 1999: 18).¹⁵

Friedman's contribution should not be viewed as a rejection of Keynes's methodology. Let me just evoke three elements of justification. First, Keynes and Friedman shared the same style of theorising and a common connection to the Marshallian tradition.¹⁶ Friedman praised Keynes for being "a true Marshallian in method" and for adopting the Marshallian rather than the Walrasian framework (1974: 18). Second, when requested to put his claim in a broader theoretical perspective the model on which Friedman fell back was the IS-LM model (Friedman 1974). Third, as argued in De Vroey (2001), Friedman's conception of expectation in his expectations-augmented Phillips Curve model must be characterised as Marshallian rather than as Walrasian.

Monetarist models ought to be viewed as Marshallian simplified general equilibrium models.¹⁷ Hence they should be placed alongside the IS-LM model in my box diagram No. 1 (see Table 5). As far as box diagram No. 2 is concerned, Friedman's aim was to reverse Keynesian policy conclusions. Yet he hardly felt it necessary to overthrow the Keynesian theoretical apparatus, contrary to what Lucas and Sargent would be pleading ten years later (Lucas and Sargent [1979] 1994). In short, Friedman should be considered as Keynesian from the methodological viewpoint and as anti-Keynesian from the policy viewpoint.¹⁸ The so-called monetarist counter-revolution should thus be ranked in the upper-right box of my second diagram (see Table 6).

Table 5. Box diagram No. 1

		Two types of general equilibrium models	
		Complex models	Simplified models
Two distinct neoclassical approaches	The Marshallian approach		- <i>The IS-LM model</i> - <i>Monetarist models</i>
	The Walrasian approach	- <i>Walras's Elements of Pure Economics</i> - <i>The Arrow-Debreu model</i>	

¹⁵ The same point is made by Snowdon and Vane (1996: 386). See also Lipsey (2000), Laidler (1981), De Long (2000).

¹⁶ On this see Hirsch and de Marchi (1990), Dostaler (1998) and Hammond (1992).

¹⁷ Brunner and Meltzer (1993) is emblematic in this respect.

¹⁸ This is also Blinder's conclusion: "The long and to some extent continuing battle between Keynesians and monetarists, you will note, has been primarily fought over the *normative issues* Thus, by my definition, most monetarists are positive Keynesians, but not normative Keynesians" (Blinder [1988] 1997: 113).

Table 6. Box diagram No. 2

		Policy cause standpoint	
		Justifying demand activation	Defending laissez-faire
Conceptual apparatus	<u>Marshallian macroeconomics</u> - The Marshall-Keynes-Hicks lineage	- <i>The IS-LM model</i>	- <i>Monetarist models</i>
	- The Marshall-Chamberlin lineage		
	<u>Walrasian macroeconomics</u> - Walrasian models		
	- non-Walrasian models		

8. Disequilibrium theory

Here I have in mind the series of models, which were initially called 'disequilibrium' models and later 'non-Walrasian equilibrium' models. They are associated with the names of Benassy, Barro and Grossman, Drèze, Malinvaud and others.¹⁹ The aim of these models was to introduce price and/or wage rigidity into Walrasian theory on the grounds that price and wages stickiness, if not rigidity, was a compelling feature of the real world.²⁰ What needs to be stressed is that they belong to the Walrasian tradition. In particular, these authors were attentive to the micro-foundations aspects. Some of these models (e.g. Drèze (1975)) were at too a high level of abstraction to accord with my criterion that a macroeconomic model should be a simplified general equilibrium model. Yet this was not the case for others. Barro and Grossman's (1971) model is the emblematic simplified non-Walrasian model. That these models were geared to policy advice is also obvious. The contrast drawn by Malinvaud (1977) between Keynesian unemployment and classical unemployment points to two distinct types of policy options according to the diagnosis made about the sort of non-Walrasian equilibrium the economy is stuck in. The policy aim consists in bringing it from the non-Walrasian equilibrium to the Walrasian equilibrium.

¹⁹ With hindsight, the disequilibrium label has been deemed inappropriate for most of these models, and they were soon re-labelled as non-Walrasian models (my own further qualification being that they are non-Walrasian in the weak sense of the term). In view of the purpose of my paper, the case of Benassy is worth retaining the attention. While most of Benassy's models were part of the Walrasian programme, he also proposed an imperfect competition model (Benassy 1976), anticipating the type of models to be developed by some new Keynesian economists. According to my taxonomy, as will be claimed below, such models are Marshallian — i.e. they are non-Walrasian in the strong sense of the term. The lesson to be drawn is that the Marshallian or Walrasian label ought to be attached to models rather than to authors.

²⁰ For a justification of this view, see Tobin ([1993] 1997).

So, these models ought to be hailed for being the first Walrasian macroeconomic model (see Table 7).²¹ However, while this approach got off to a quick start, it was soon criticized for its rigidity assumption. Rigidity might well be a real-world feature yet, according to the detractors of the approach, this was not a sufficient condition for introducing it into the Walrasian construct. This was the gist of Lucas's criticism (Lucas 1987: 52-53). The defenders of the new school admitted that a foundation needed to be provided for rigidity, yet to them this lack did not justify discarding their approach.²² Be that as it may, most of its proponents, beginning with Barro and Grossman themselves, changed their minds and abandoned this line of research. As far as box diagram No. 2 is concerned, disequilibrium models are non-Keynesian from the conceptual apparatus point of view but Keynesian from the policy viewpoint (see Table 8). As a result, the meaning of the Keynesian modifier now becomes ambiguous.

Table 7. Box diagram No. 1

		Two types of general equilibrium models	
		Complex models	Simplified models
Two distinct neoclassical approaches	The Marshallian approach		<ul style="list-style-type: none"> - <i>The IS-LM model</i> - <i>Monetarist models</i>
	The Walrasian approach	<ul style="list-style-type: none"> - <i>Walras's Elements of Pure Economics</i> - <i>The Arrow-Debreu model</i> 	- <i>Disequilibrium models</i>

Table 8. Box diagram No. 2

		Policy cause standpoint	
		Justifying demand activation	Defending laissez-faire
Conceptual apparatus	<u>Marshallian macroeconomics</u> - The Marshall-Keynes-Hicks lineage	- <i>The IS-LM model</i>	- <i>Monetarist models</i>
	- The Marshall-Chamberlin lineage		
	<u>Walrasian macroeconomics</u> - Walrasian models		
	- non-Walrasian models	- <i>Disequilibrium models</i>	

²¹ An earlier attempt to the same effect is of course Patinkin ([1956] 1965).

²² As stated by Malinvaud, "Economics is therefore not at fault in considering the consequences of wage rigidity if this rigidity has been proved to exist. Of course, explanations of it are (or would be) useful for subsequent scientific progress, but even if they are (or were) lacking, it would still be wrong to overlook the observed facts" (Malinvaud 1984: 21).

9 The new classical revolution

Friedman's anti-Keynesian offensive dealt exclusively with policy. His was an internal criticism led from within the Marshallian–Keynesian conceptual apparatus. This is no longer true for the attack against Keynesian theory led by Lucas and his associates. As an external criticism, Lucas's attack led to a change that had all the hallmarks of a Kuhnian scientific revolution: a shift in the type of issues that are addressed, a new conceptual toolbox, new mathematical methods, the coming into power of a new generation of scholars, etc.²³

In the beginning, Lucas's work was branded as 'monetarism mark II', an inappropriate terminology in view of the deep methodological breach separating Lucas from Friedman (see Hoover 1984). This terminology was rightly soon abandoned in favour of the 'new classical' label, meant to honour Keynes's predecessors (such as Hayek) who claimed that the way forward was to dynamise Walrasian static equilibrium theory. The DSGE acronym (dynamic stochastic general equilibrium) has recently been proposed to characterise modern macroeconomics. What ought, however, to be noted is that successive phases have evolved within the new approach, Lucas's models being the first of them. It was followed by another class of models, real business models, associated with the work of Kydland and Prescott (1982). Now, we are witnessing the emergence of a third phase where the canonical real business cycle model is transformed through the integration of non-Walrasian elements. I shall deal with these three phases in turn (with an interruption between the first and the second to discuss new Keynesian models).

As in all scientific revolutions, the new approach combined a criticism of the previous and the emergence of a new direction of research. I will not go into details on the former, contenting myself with mentioning a few of the main criticisms. One type of criticism, mainly made by Lucas, bore on the methodological flaws in Keynes's approach. For example, Lucas wrote a clever article criticising the notion of involuntary unemployment (Lucas [1978] 1981). Another attack, which became known as the 'Lucas critique', pertained to the inability of Keynesian models to provide a robust basis on which to assess alternative economic policies (Lucas [1976] 1981). Finally, another influential critical piece was Kydland and Prescott's (1977) time inconsistency article, aiming at clinching the case for rules against discretion in monetary policy as well as more generally.

Turning to the positive side, the most salient traits of the new approach are as follows.²⁴

The equilibrium discipline

A first trait is what Lucas called the equilibrium discipline, the fact that postulating optimizing behaviour and market clearing is considered the *sine qua non* of sound economic

²³ An early assessment of Lucas's contribution, which is still worth consulting, is Hoover (1988).

²⁴ The rational expectations hypothesis is probably the most outstanding feature of the new approach but I shall not expand on it because it is too well known.

reasoning. It is a discipline in the moral sense of the term, a rule that one imposes on oneself in order to attain a given aim.

Clearly, this standpoint amounts to sweeping under the rug the issue of the working or failure of the invisible hand. The underlying rationale is that interesting economic models can be constructed while neglecting this issue. In defence of this standpoint, it can be claimed that Lucas did nothing more than make explicit the dominant practice of neoclassical economists (with the exception of the Austrians, on the one hand, and Keynes, on the other). New classical economists did not invent market clearing; they have merely given it a higher, more visible, status (see De Vroey 2007).

The new perspective was accompanied with an important shift in the meaning of the concept of equilibrium. In earlier times, from Adam Smith to Marshall and Keynes, the notion of equilibrium was little different from its common-sense understanding. It was viewed as a standstill position, a centre of gravity. The hallmark of equilibrium was the persistence of the same outcomes over time. The question raised about equilibrium was whether a given market or a given economy was in a state of equilibrium at a given point in time. Lucas's originality was to depart from this traditional conception by adhering to a conception of equilibrium where the economy could be stated to be in equilibrium while evincing ever-changing outcomes over time. Moreover, for Lucas, equilibrium was no longer a feature of reality. The following quotation, drawn from an interview with Snowdon and Vane, illustrates his viewpoint:

I think general discussions, especially by non-economists, of whether the system is in equilibrium or not are almost entirely nonsense. You can't look out of this window and ask whether New Orleans is in equilibrium. What does that mean? Equilibrium is a property of the way we look at things, not a property of reality. (Snowdon and Vane, 1998:127).

The take-over bid for business cycle theory by value theory

A distinctive feature of the new approach lies in its having extended the scope of relevance of value theory to a domain, the business cycle, which previously was believed to be beyond its grasp. Thereby a gulf, which had marked economic theory for more than a century — its split in two distinct branches, value or price theory, on the one hand, and business cycle theory, on the other — was bridged. With the development of an equilibrium theory of the business cycle, the two fields merged.

Several implications follow. Let me mention two of them. The idea that one might construct a theory of the business cycle without resorting to the unemployment notion was previously deemed inconceivable. Now it turns out that the decisive factor to be considered in the study of the business cycle is the total numbers of hours worked rather than the rate of unemployment. Whether this total number is equally or unequally divided among the labour

force is deemed to be of secondary importance. A second implication is that the earlier judgements made about the harmful character of business cycles vanishes. Business cycles are no longer considered the manifestation of some malfunctioning to be corrected by the state.

The rise of Walrasian macroeconomics

I claimed above that the disequilibrium approach constituted the first attempt at developing Walrasian macroeconomics, yet, for better or worse, it failed to be met with lasting success. Lucas, Kydland and Prescott were more successful. In the wake of their work, macroeconomics became predominantly Walrasian.²⁵ The new approach abides by my definition according to which macroeconomics consists of a simplification of complex general equilibrium models as it marks a return to square one of Walras' construction, the two-good exchange economy. This is topped with the introduction of a few additional elements borrowed from the Arrow-Debreu model, such as intertemporal substitution and a more complex notion of commodity. Still, the Walrasian lineage is undeniable. On the other hand, the drawback besetting the birth of Keynesian macroeconomics, that there existed no well-established Marshallian general equilibrium model of the complex type from which to start in order to construct simplified models, is of course now absent.

An important methodological difference from earlier Walrasian authors ought, however, to be noticed. Authors like Arrow, Debreu, Mackenzie, Hahn and their followers have repeatedly insisted that neo-Walrasian general equilibrium theory is an abstract construction the strength of which lies in its ability to posit issues in a rigorous way. Its main interest with respect to reality, they argue, it to provide a negative benchmark. In short, these authors admit to a no bridge between their theoretical constructs and real-world market economies.²⁶ Real business cycle models mark a radical change in this respect by claiming that the validity of their models rests on their capacity to mimic real-world time-series. Neither Walras nor earlier neo-Walrasian authors would ever have made such a claim.

A change in research priorities

The main change has concerned the research agenda. In 1971, in his Presidential Address to the American Economic Association, Tobin wrote that macroeconomics deprived of the full employment concept was unimaginable (1972: 1). But this is exactly what happened to macroeconomics. The unemployment theme — and in a wider sense the search for the malfunctioning of markets — has ceased to be an important preoccupation of macroeconomists.²⁷ It has fallen out of fashion, macroeconomists being glad to send it back to

²⁵ This characterization is valid for the first two phases of the DSGE approach but not for the third one, which evinces the emergence of non-Walrasian models.

²⁶ As stated by Weintraub, “the [Walrasian] 'equilibrium' story is one in which empirical work, ideas of fact and falsifications, played no role at all” (1983: 37).

²⁷ The following comment by Hahn and Solow captures the outrage of earlier authors faced with this dismissal: “The irony is that macroeconomics began as the study of large-scale economic pathologies: prolonged depressions, mass unemployment, persistent inflation, etc. This focus was not invented by Keynes (although the

labour economists. At the top of the agenda we now have issues related to the business cycle and a wider and wider spectrum of themes related to growth and development.

After these general considerations, I now return to the narrower new classical or Lucasian type of model (Lucas 1[972] 1981, [1975] 1981, [1976] 1981) with the aim of positioning it in my taxonomy. As far as box diagram No. 1 is concerned, Lucas's contribution allows me to fill in a new slot corresponding to the full establishing of Walrasian macroeconomics, after the initial disequilibrium attempt (see Table 9).

Turning to my box diagramme No. 2, Lucas's model is definitely anti-Keynesian both from the policy cause and the conceptual apparatus points of view. It marks a break between macroeconomics and Keynesianism since it is anti-Keynesian in both senses of the term. On the other hand, it belongs to the Walrasian tradition yet features a non-Walrasian result (in the weak sense of the modifier) since the outcomes are different from those that would have arisen in a perfect information context. Its positioning in the bottom right-hand box is shown in Table 10.

Table 9. Box diagram No. 1

		Two types of general equilibrium models	
		Complex models	Simplified models
Two distinct neoclassical approaches	The Marshallian approach		<ul style="list-style-type: none"> – <i>The IS-LM model</i> – <i>Monetarist models</i>
	The Walrasian approach	<ul style="list-style-type: none"> – <i>Walras's Elements of Pure Economics</i> – <i>The Arrow-Debreu model</i> 	<ul style="list-style-type: none"> – <i>Disequilibrium models</i> – <i>New Classical models à la Lucas</i>

depression of the 1930s did not pass without notice). After all, most of Haberler's classic *Prosperity and Depression* is about ideas that were in circulation before *The General Theory*. Now, at last, macroeconomic theory has as its central conception a model in which such pathologies are, strictly speaking, unmentionable. There is no legal way to talk about them" (Hahn and Solow 1995: 2-3).

Table 10. Box diagram No. 2

		Policy cause standpoint	
		Justifying demand activation	Defending laissez-faire
Conceptual apparatus	<u>Marshallian macroeconomics</u> - The Marshall-Keynes-Hicks lineage	- <i>The IS-LM model</i>	- <i>Monetarist models</i>
	- The Marshall-Chamberlin lineage		
	<u>Walrasian macroeconomics</u> - Walrasian models		
	- non-Walrasian models	- <i>Disequilibrium models</i>	- <i>New classical models à la Lucas</i>

10. New Keynesian models

Before continuing my study of DSGE macroeconomics, I need to consider the reactions of Keynesian economists to the Lucasian anti-Keynesian offensive. There were two distinct types of reactions. One was total rejection.²⁸ The other amounted to admitting that Lucas's criticisms were well founded and could not be dismissed with a sweep of hand. This attitude was the hallmark of 'new Keynesian' economists. While wanting to re-habilitate Keynes's insights, they agreed to wage the war on Lucas's turf, i.e. to respect the micro-foundations requirement. However, new Keynesian economics was far from being an unified approach. Let me just mention a few of the lines of research taken. Some new Keynesian models — such as efficiency wages models (e.g. Shapiro and Stiglitz (1984)) — made it their priority to demonstrate the equilibrium existence of involuntary unemployment. Others — in particular coordination failures models (e.g. Diamond ([1982] 1991)) — forewent the aim of demonstrating involuntary unemployment in a strict sense, instead concerning themselves with the less ambitious aim of demonstrating underemployment in a multiple equilibria framework. Thereby, they were able to exonerate wage rigidity as a cause of the phenomenon and to vindicate demand activation. Still other authors (e.g. Hart ([1982] 1991), Blanchard and Kiyotaki ([1987] 1991)), also concerned with underemployment, adopted an imperfectly-competitive framework. This enabled, them to give a foundation to the non-neutrality of money and thus to offer a rebuttal of the claims made by Friedman and Lucas.²⁹

²⁸ The following two excerpts illustrate this strand. "I argue ... that there was no anomaly, that the ascendancy of new classicism in academia was instead a triumph of *a priori* theorizing over empiricism, of intellectual aesthetics over observation and, in some measure, of conservative ideology over liberalism" (Blinder [1988] 1997: 110). "To many Keynesians, the new classical programme replaced messy truth by precise error" (Lipsey 2000: 76).

²⁹ In my book (De Vroey 2004), I have assessed several of these models against what I called the 'Keynes's programme', i.e. the simultaneous achievement of four objectives — (a) demonstrating involuntary unemployment in an individual disequilibrium sense; (b) exonerating wage rigidity from causing it; (c) bringing out a system failure; (d) vindicating demand activation.

Locating the new Keynesian models in my taxonomy is more complicated than locating the earlier models, if only because they are too varied to be placed in the same slot. Some of them should actually be considered as falling outside of the scope of macroeconomics as I have defined it because they do not deal with the economy as a whole. This is the case for early efficiency wages models. If they are considered as having a place within macroeconomics, it is simply because of their concern with involuntary unemployment, and to me this is the wrong criterion. Hence their exclusion from box diagram No. 1 (see Table 11) and the need for a new row in my box diagram No. 2 (see Table 12). As to the other New Keynesian models, which do adopt a general equilibrium perspective, coordination failures models ought to be placed alongside disequilibrium models in box diagram No. 1 (see Table 11). As far as box diagram No. 2 is concerned, they can be ranked within the non-Walrasian branch of the Walrasian tradition on the one hand, and within the Keynesian policy cause, on the other hand (see Table 12).

More attention ought to be paid to imperfectly-competitive general-equilibrium models because of their resurgence in the third phase of DSGE macroeconomics. The question to be raised is how they fare with the Marshall-Walras divide evoked in section 3. My claim here is that, when gauged against this divide, they must be viewed as sub-types of the Marshallian economy rather than of the Walrasian economy universe. Several factors explain: the economy is divided into isolated markets, which are autonomous loci for formation of equilibrium; money is present; imperfect competition prevails; no auctioneer is present, a fraction of the agents are price-makers, the others being price-takers; price-making agents have perfect information about market conditions. So, imperfect competition models must be considered as being non-Walrasian in the strong sense of the term.

In Table 11, I locate imperfect competition models in the upper-right box as a new type of Marshallian simplified general equilibrium models. As far as box diagram No. 2 is concerned, I am reluctant to place imperfect competition in the same box as the Marshallian models examined earlier (the Marshall–Keynes–Hicks lineage). Their abode is rather the ‘Marshall–Chamberlin line’. Turning to the policy cause defended, it is clear that they should be located in the left column (see Table 12).

Table 11. Box diagram No. 1

		Two types of general equilibrium models	
		Complex models	Simplified models
Two distinct neoclassical approaches	The Marshallian approach		<ul style="list-style-type: none"> – <i>The IS-LM model</i> – <i>Monetarist models</i> – <i>Imperfect competition models</i>
	The Walrasian approach	<ul style="list-style-type: none"> – <i>Walras’s Elements of Pure Economics</i> – <i>The Arrow-Debreu model</i> 	<ul style="list-style-type: none"> – <i>Disequilibrium models</i> – <i>Coordination failures models</i>

Table 12. Box diagram No. 2

		Policy cause standpoint	
		Justifying demand activation	Defending laissez-faire
General equilibrium definition of macroeconomics	<u>Marshallian macroeconomics</u> – The Marshall-Keynes-Hicks lineage	- <i>The IS-LM model</i>	- <i>Monetarist models</i>
	– The Marshall-Chamberlin lineage	- <i>Imperfect competition models</i>	
	<u>Walrasian macroeconomics</u> - Walrasian models		
	– Non-Walrasian models	- <i>Disequilibrium models</i> - <i>Coordination failures models</i>	- <i>New Classical models</i> à la Lucas
Macroeconomics as the study of unemployment		- <i>Efficiency wage models</i>	

Returning to new Keynesian economics in general, the judgment to be made about their success is mixed. In my opinion, in so far as the battle waged by these economists was geared to demonstrating the existence of involuntary unemployment or underemployment, it has been lost. Not so much because clever models achieving this aim have failed to emerge, but rather because the change in paradigm meant that unemployment ceased to be an exciting topic. The game in town had changed; the Lucas–Kydland and Prescott bandwagon was rolling too fast to be stopped.

11. Real business cycle models

Real business cycle models are an outcrop from Lucas’s initial models. The two seminal papers that triggered it off are Kydland and Prescott’s (1982) article, “Time to Build and Aggregate Fluctuations” and Long and Plosser’s (1983) paper, “Real Business Cycles”. It was the first of these that set the pace. The main differences between this and Lucas’s model are: (a) shocks are now real, having a technological origin, (b) information is perfect and (c) The Kydland-Prescott model pursues a quantitative rather than a qualitative aim.

I shall not delve in the contents of real business cycle models, contenting myself with making three remarks. First, Kydland and Prescott’s feat is to have been able to mimic real-world data on the fluctuations of the US economy over half a century fairly well, with the most parsimonious conceivable type of model. Second, their model has developed into a canonical model, which has become the base-camp for the construction of models addressing a wide

range of stylized facts. Third, their model provided an unified approach to two phenomena that had always been considered as needing different theoretical frameworks, the business cycle and economic growth.

Turning to the task of locating Kydland and Prescott's model in my taxonomy, unsurprisingly, it is placed close to the classification of Lucas's model (see Table 13 and 14). The only slight difference is present in Table 14 and bears on the fact that Kydland and Prescott's model is Walrasian while Lucas's is non-Walrasian.

Table 13. Box diagram No. 1

		Two types of general equilibrium models	
		Complex models	Simplified models
Two distinct neoclassical approaches	The Marshallian approach		<ul style="list-style-type: none"> – <i>The IS-LM model</i> – <i>Monetarist models</i> – <i>Imperfect competition models</i>
	The Walrasian approach	<ul style="list-style-type: none"> – <i>Walras's Elements of Pure Economics</i> – <i>The Arrow-Debreu model</i> 	<ul style="list-style-type: none"> – <i>Disequilibrium models</i> – <i>Coordination failures models</i> – <i>New Classical models à la Lucas</i> – <i>Real Business cycle models</i>

Table 14. Box diagram No. 2

		Policy cause standpoint	
		Justifying demand activation	Defending laissez-faire
General equilibrium definition of macroeconomics	<u>Marshallian macroeconomics</u> – The Marshall-Keynes-Hicks lineage	- <i>IS-LM model</i>	- <i>Monetarist models</i>
	– The Marshall-Chamberlin lineage	- <i>Imperfect competition models</i>	
	<u>Walrasian macroeconomics</u> – Walrasian models		- <i>Real business cycle models</i>
	– Non-Walrasian models	<ul style="list-style-type: none"> - <i>Disequilibrium models</i> - <i>Coordination failures models</i> 	- <i>New Classical models à la Lucas</i>
Macroeconomics as the study of unemployment		- <i>Efficiency wage models</i>	

12. The new neoclassical synthesis

If time were to stop at this point in my story, the answer to the question in the title of my article would be positive. Macroeconomics has become fully divorced from its Keynesian

origin. As long as real business cycle models are the prevailing way of practising macroeconomics, not the least reference to Keynes is necessary.

However, economic theory is an ongoing process, models are there to be criticised and superseded. While no radical dethroning of the DSGE approach has taken place, several endogenous transformations have occurred. Here I will limit myself to one of them, namely models re-addressing the issue of the efficiency of monetary policy that Friedman and Lucas seemed to have written off.³⁰ Theoretical considerations might well have concluded that monetary policy was indeed inefficient but the stylised facts indicated that changes in the money supply have persistent effects. The models that were constructed to tackle this issue have been labelled as either ‘new neoclassical synthesis’ models (Goodfriend and King 1997) or ‘new Keynesian Phillips curve’ models (Clarida, Gali and Gertler 1999). Whatever the tag, what is involved is a shift from a Walrasian to a non-Walrasian perspective, which merges ‘Keynesian’ (money, imperfect competition and sticky prices) and real business cycle elements (intertemporal optimisation, rational expectations, market clearing and their integration into a stochastic dynamic model).³¹

The main approach has been to enrich the Dixit-Stiglitz model (Dixit-Stiglitz 1977) by making it doubly imperfect, i.e. by combining a real imperfection (imperfect competition) with a nominal imperfection (sticky prices). Sticky prices are obtained either by resorting to staggered wage-setting *à la* Taylor (1979) or to price-setting *à la* Calvo (1983) (where it is assumed that only a given proportion of all firms are able to change their prices at each period). An unanticipated nominal shock (central banks following the Taylor rule) occurs, typically taking the form of a decrease in the interest rate. The ensuing increase in the demand for goods will be met by an increase in the level of activity. As a result, the gap between the Walrasian and the non-Walrasian output will be reduced. All in all, monetary expansion can be considered to be efficient.

Strikingly, all participants in the debate agree on the rules of the games, the principles that sane modelling ought to respect. Does this mean that ideology has vanished from the scene? This is Blanchard’s opinion:

Most macroeconomic research today focuses on the macroeconomic implications of some imperfection or another. At the frontier of macro-economic research, the field is surprisingly a-ideological (Blanchard 2000: 39).

If ideology means the policy cause espoused by economists, Blanchard’s view can be questioned since perfect agreement on the conceptual apparatus can accompany opposed policy views. So, I would rather stick with Lucas’s opinion as expressed on p. 8.

³⁰ Another thriving line of research is search theory. See Rogerson, Shimer and Wright (2005).

³¹ ‘New’ imperfect competition models differ from earlier ones because of their dynamic stochastic character.

Back now to my typology. All the authors involved agree that the new models are non-Walrasian as far as their conceptual apparatus is concerned. But they leave the matter there since they are unaware of the distinction that I have proposed above between the two meanings of the term ‘non-Walrasian’. Taking this distinction into account leads me to claim that these models are non-Walrasian in the strong sense of the term in the same way as the first generation of imperfect competition models were. Therefore they ought to be located likewise (see Table 15 and 16). Admittedly, this cannot be the last word about them. In these models the analysis actually goes back and forth between the Marshallian and the Walrasian approach. The account of the economy underlying them is Marshallian, its equilibrium result is non-Walrasian yet the whole point of building them is to compare their equilibrium outcome with the result that would have prevailed if the economy had been Walrasian.

Table 15. Box diagram No. 1

		Two types of general equilibrium models	
		Complex models	Simplified models
Two distinct neoclassical approaches	The Marshallian approach		<ul style="list-style-type: none"> – <i>The IS-LM model</i> – <i>Monetarist models</i> – <i>Imperfect competition models</i> – <i>New neoclassical synthesis models</i>
	The Walrasian approach	<ul style="list-style-type: none"> – <i>Walras’s Elements of Pure Economics</i> – <i>The Arrow-Debreu model</i> 	<ul style="list-style-type: none"> – <i>Disequilibrium models</i> – <i>Coordination failures models</i> – <i>New Classical models à la Lucas</i> – <i>Real Business cycle models</i>

Table 16. Box diagram No. 2

		Policy cause standpoint	
		Justifying demand activation	Defending laissez-faire
General equilibrium definition of macroeconomics	<u>Marshallian macroeconomics</u> – The Marshall-Keynes-Hicks lineage	- <i>The IS-LM model</i>	- <i>Monetarist models</i>
	– The Marshall-Chamberlin lineage	- <i>(Static) imperfect competition models</i> – <i>New neoclassical synthesis models</i>	
	<u>Walrasian macroeconomics</u> – Walrasian models		- <i>Real business cycle models</i>
	– Non-Walrasian models	- <i>Disequilibrium models</i> - <i>Coordination failures models</i>	- <i>New Classical models à la Lucas</i>
Macroeconomics as the study of unemployment		- <i>Efficiency wage models</i>	

Authors such as Clarida *et al.* are able to bring out a link between their model and the IS-LM model.³² It may then be wondered whether new neoclassical synthesis models bear witness to a Keynesian recovery? It is too early to know how or indeed whether they will continue to develop. Be that as it may, it ought to be realised that the type of Keynesianism, which they embody, is significantly different from any previous variety. First of all, they are not concerned with unemployment but only with underemployment.³³ Moreover, they are hardly Keynesian from the conceptual apparatus standpoint (but Marshallian nevertheless). Their target (demonstrating the existence of market imperfections) is also milder than that of earlier Keynesians (demonstrating the existence of market failures). On the other hand, if the debate between Keynesians and anti-Keynesians is viewed as boiling down to a confrontation over the issue of the efficiency of monetary policy (with Keynesians being on the side of efficiency and anti-Keynesians on that of inefficiency), then these models do indeed mark a re-birth of the Keynesian cause.

³² Romer (2000) is another article illustrating the amazing ability of the IS-LM model to rebound.

³³ Amongst the new types of models that are emerging, Cole and Ohanian (2005) model of slow recovery from the Great Depression is worth mentioning here. It constitutes yet another new combination of factors, since it intertwines real shocks with imperfect competition. Its interest for my purpose lies in the following contrast. While the Keynesian models rest on the market clearing assumption (their object of study being underemployment), Cole and Ohanian's model, which is definitely non-Keynesian in its policy dimension, yields an involuntary unemployment result. However, the latter expresses a government rather than a market failure, the allegedly inept New Deal policies. In other words, the initially Keynesian notion of involuntary unemployment has now changed camp!

13. Concluding remarks

The aim of my paper was to give an account of the history of macroeconomics from Keynes to the present day using a grid formed by the combination of two distinctions, the distinction between the Marshallian and the Walrasian approach, on the one hand, and the distinction between Keynesianism as a theoretical apparatus and Keynesianism as a policy cause, on the other. This has led me to recount this history as if it were a matter of filling in, step by step, the different slots in my two box diagrams.

I have characterised the evolution of macroeconomics in a twofold way. The first is a shift from a Marshallian to a Walrasian perspective, with a return to the former taking shape. The second is a shift from macroeconomic models that are fully Keynesian (as determined by my two criteria) to models that are fully anti-Keynesian, with a mild reversal also beginning to occur here. My claim is that this way of positing issues sheds an original and more complete light on the history of macroeconomics.

I have also brought out that, to date, the history of macroeconomics has witnessed to two defining moments. The emergence of macroeconomics — narrowly defined, as the conjunction of three distinct episodes (Keynes' *General Theory*, the recasting of this by Hicks in his IS-LM model, and the rise of econometric models) — is the first of them. The second is the scientific revolution that dethroned Keynesian macroeconomics and replaced it by DSGE models.

Have macroeconomists really got rid of Keynes? No straightforward answer can be given to this question. As far as the conceptual apparatus is concerned, the answer is yes (but if Keynes is out, Marshall is still in!). This is no wonder. The fact that the IS-LM model would still be the overarching model would mean that little progress has occurred in macroeconomics over the years. As far as the other dimension is concerned, two observations are worth making. The first is that some Keynesian cause always seems to crop back up again after a phase where the opposite camp has been winning (and vice versa). The second is that a mellowing of the Keynesian cause has occurred over the years, a shift away from the aim of demonstrating market failures, in particular involuntary unemployment, to the less ambitious goal of bringing imperfections to the forefront.

So, the final word is that the Keynesian modifier as it is used at present has only a remote relation to the concepts used by John Maynard Keynes. Nonetheless it has little chances of disappearing from the scene because it has become a banner under which economists having doubts about unfettered laissez-faire like to rally.

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