



**COLLANA DEL
DIPARTIMENTO DI ECONOMIA**

**SHORT PERIOD AND LONG PERIOD IN MACROECONOMICS:
AN AWKWARD DISTINCTION.**

Eleonora Sanfilippo

Working Paper n° 95, 2008

- I “Working Papers” del Dipartimento di Economia svolgono la funzione di divulgare tempestivamente, in forma definitiva o provvisoria, i risultati di ricerche scientifiche originali. La loro pubblicazione è soggetta all’approvazione del Comitato Scientifico.
- Per ciascuna pubblicazione vengono soddisfatti gli obblighi previsti dall’art. 1 del D.L.L. 31.8.1945, n. 660 e successive modifiche.
- Copie della presente pubblicazione possono essere richieste alla Redazione.

REDAZIONE:

Dipartimento di Economia
Università degli Studi Roma Tre
Via Silvio D'Amico, 77 - 00145 Roma
Tel. 0039-06-57335655 fax 0039-06-57335771
E-mail: dip_eco@uniroma3.it



DIPARTIMENTO DI ECONOMIA

**SHORT PERIOD AND LONG PERIOD IN MACROECONOMICS:
AN AWKWARD DISTINCTION.**

Eleonora Sanfilippo*

Comitato Scientifico:
Proff. R. Ciccone
A. Palumbo
A. Trezzini

** Dipartimento di Scienze Economiche di Cassino*

Short Period and Long Period in Macroeconomics: An Awkward Distinction.

Eleonora Sanfilippo*

Abstract: *The aim of this paper is to show that the use and meaning of the well-known concepts of short period and long period is often unclear and may be seriously misleading when applied to macroeconomic analysis. Evidence of this confusion emerges through examination of four macroeconomics textbooks and reappraisal of the interpretative debate - which took place mainly in the 1980s and 1990s - aiming at establishing whether Keynes's General Theory should be considered as a short- or long-period analysis of the aggregate level of production. Having explored some possible explanations for the difficulties in defining and applying these methodological tools at a 'macro' level, the conclusion is suggested that it would be preferable to abandon this terminology in classifying different aggregate models and simply to make explicit the given factors, independent and dependent variables in each model in use, exactly as Keynes did in Chapter 18 of his major work.*

1. Introduction

In most macroeconomics textbooks commonly employed in undergraduate economics courses, when introducing the fundamental hypotheses of the 'Keynesian' model determining the GDP based on aggregate expenditure, a distinction is usually made between analysis of the functioning of the economic system in the short period and growth theory, 'intended as referring to its path in the long period' (Lipsey and Chrystal 2004: 484). The distinction between long and short period also plays a crucial role when applied to the AD-AS model.

The aim of this paper is to show that the use and meaning of these well-known concepts is often unclear and may be seriously misleading when applied to macroeconomic analysis. What seems particularly difficult to grasp is the exact meaning to be given to short period, long period, and growth, and the analytical assumptions which characterize each of them. Evidence of this difficulty emerges through examination of four well-known textbooks on this point (section 2), and through reappraisal of the interpretative debate - which took place in the 1980s and 1990s - aiming at establishing whether Keynes's *General Theory* should be considered as a short- or long-period analysis of the aggregate level of production (section 3). A possible explanation for the confusion in the use of these methodological tools at a 'macro' level may have to do with the fact that they were originally elaborated by Marshall within the analysis of the equilibrium of the firm (or industry) and cannot be

* Dipartimento di Scienze Economiche, Università di Cassino (e-mail: e.sanfilippo@libero.it). This paper is partially drawn from the first part of my PhD thesis. I wish to express my gratitude, without in any way involving them, to Victoria Chick, Sergio Nisticò and Mario Tonveronachi, my supervisor, for extensive discussions during the preparation of the thesis and to Luca Fantacci for some useful suggestions on this version. All remaining errors and misunderstandings are my own responsibility.

extended to an aggregate framework without a loss of realism and usefulness. A further source of misunderstanding seems to arise from the habit – which Keynes first criticized (CWK XXIX: 55) – of identifying the long period with an ‘optimal’ position towards which the economic system ‘naturally’ tends if the necessary flexibilities are guaranteed (section 4). The conclusion suggested here (section 5) is that this terminology should be altogether avoided in macroeconomics. It may be sufficient to resort to the ‘*ceteris paribus*’ clause, making the given factors, independent and dependent variables explicit in each model in use, in order to formulate realistic assumptions about the institutional set characterizing the environment that the model is meant to describe. This is, in fact, exactly what Keynes did in his model for the determination of national income and employment (*General Theory*, Ch. 18).

2. Short period and long period in modern macroeconomics textbooks

In microeconomic analysis the meaning of short and long period is strictly identified and everybody can refer to them with the certainty that no misunderstandings can arise. There is, in other words, full consensus on it among economists belonging to different schools and generations. Both concepts refer to the equilibrium position of a firm or industry. As is well-known, the short period is a context in which the productive capacity is given, and what can vary with the fluctuations in demand is the intensity of use of this given capacity. The long period, on the other hand, is a situation in which also the productive capacity can change to adjust to the level of demand. These definitions become much less clear and uncontroversial when we move to macroeconomics.

Lipsey and Chrystal (2004: 484-5), in the attempt to dissipate the confusion which arises when they are applied to an aggregate framework, maintain that short period and long period are different concepts in microeconomics and macroeconomics. As a consequence, they specify a meaning for them which, instead of being general and explanatory, appears as an *ad hoc* content, built up to fit with the use commonly made in the AD-AS model. In particular, the short period ‘represents this particular length of time in which the economic system experiences a deviation of its actual GDP from its potential level ... [and] it could last for several years, not being short in the common sense’ (*ibid.*). It is implied – but not clearly stated – that in this ‘macro’ short period the level of capital in the economy is also given (as is the case at a ‘micro’ level for each firm, or industry). The long period is defined as ‘the length of time necessary to the automatic adjustment mechanisms to take place, which allow the system to come back to equilibrium after exogenous shocks’ (*ibid.*). This ‘equilibrium’ position is explicitly intended as being at the level of potential GDP (or full employment) and the ‘automatic mechanisms’ are intended to be (see, e.g., chapters 25 and 26 of the book) the full flexibility of prices in general and, specifically, wage rates. These definitions appear to be both tautological and empty because they link the distinction between short and long period (which pertains to the fundamental hypotheses characterizing the model) to what should be considered as one of the possible (yet to be demonstrated) *outcomes* of the model itself. To this construction a further hypothesis is added, namely that the potential GDP is constant and associated with a fixed stock of capital and given technology. It is clearly remarked by the authors that this condition is in contrast with the definition of the long period at a ‘micro’ level, which normally refers ‘to a length of time in which the capital stock can vary’ (*ibid.*). It is also possible – they continue – to define in

macroeconomics a kind of 'long period' of the same type as defined at a 'micro' level; it is called a 'very long period', in which the productive capacity can change, and it allows for the analysis of the 'growth of potential GDP'. The former long period is labeled by the authors 'the static concept of long period', whereas the latter is fully associated with 'growth theory'.¹

In Stiglitz (1997: 156-161) the short period is unambiguously defined as a context in which wages are fixed in the labor market and prices are fixed in the goods markets. The long period, in this case, seems to be a framework in which prices and wages can vary but capital is still given in the economy. At the same time, the wording of long period also refers to growth analysis and the explanation of the determinants of productivity and its change over time. Again the analytical content of all these concepts is ambiguous, and it is not clear how they can be consistent with one another.

In Krugman and Wells (2005: 227-35), too, the short period is closely linked to the assumption of rigid nominal wages and the distinction between short and long period is focused on the length of time necessary for nominal wages to become flexible and allow for the adjustment between actual and potential GDP. There is the further specification that 'long period growth, which takes place in several years, and long period aggregate supply, which normally refers to a period of about ten years' in fact imply a single concept of long period, because in the long period actual GDP oscillates around potential GDP, so that 'the growth rate of actual GDP in the long period (ten years) could not be too far from the growth rate of potential GDP' (Krugman and Wells 2005: 233).

A somewhat clearer – but not completely satisfying – treatment is to be found in Blanchard (2006: 48-49), where distinction is made between short, middle and long period, linked to the different determinants of the GDP as time passes. In the short period, which is considered as lasting just a few years, the changes in GDP are mainly due to fluctuations in aggregate demand, which can produce recessions or booms. In the middle period, which corresponds to a length of ten years, the GDP 'tends to the level of production determined by the supply factors: stock of capital, technology, and labor supply. As these factors do not significantly change in ten years, they can be considered as given' (*ibid.*). In the long period – the author continues - which lasts for a century or more, the most important determinants of GDP are: the saving rates (on which the quantity of capital in the economy depends), the technology, and the educational system (on which the quality and quantity of labor supply also depend). Even though in this case the procedure adopted seems more sound, in the application of the concepts to the usual models (AE model, AS-AD model) some confusion remains about the different hypotheses underlying respectively the three frameworks, and in particular the assumptions concerning capital, prices of production factors, technology, and the definition of potential GDP. In any case, a specified chronological duration is attributed to the different periods considered, which are defined on the basis of the factors determining the level of GDP in different spans of time.

To summarize:

¹ What is to be considered as 'growth theory' in the literature is not always clear, at least at the terminological level. The Harrod-Domar model, for example, which explicitly considers changes in capital stocks, through net investment, and their effects on the production level, is labeled as 'development theory', whereas all models on 'endogenous growth', based on the neoclassical Cobb-Douglas production function, are classified as 'growth theory'.

- 1) in all the examples examined a content in terms of chronological time is attributed to the different periods which is not always consistent throughout the different macroeconomic models presented;
- 2) the short period is usually linked to a given quantity of capital in the economy, and/or to a rigidity of prices and wages, and always to a differential between actual and potential GDP, the latter being understood as a full employment position;
- 3) the long period appears to be the most ambiguous concept: sometimes it is associated with the full flexibility of prices and wages (which can guarantee the coincidence between the actual and potential GDP), together with the assumption of given capital; sometimes it refers to a context of growth of potential GDP and changes in productive capacity; always, implicitly or explicitly, it is identified with the establishment of a full employment position, warranted by the existence of automatic mechanisms at work in periods of time of 'sufficient' (even though not univocally specified) duration.

3. Keynes's *General Theory*: a short-period or long-period analysis?

3.1 The interpretative debate

One of the most significant examples of this confusion in meanings and terminology about short period and long period in macroeconomics is offered by the interpretative debate which took place, mainly in the 1980s and 1990s, on Keynes's *General Theory*.

In a well-known passage in Chapter 18, Keynes specifies the given factors in his model for determination of the equilibrium level of national income:

We take as given the existing skill and quantity of available labour, the existing quality and quantity of available equipment, the existing technique, the degree of competition, the tastes and habits of the consumer, the disutility of different intensities of labour and of the activities of supervision and organisation, as well as the social structure including the forces, other than our variables set forth below, which determine the distribution of the national income (CWK VII: 245).

It is fundamentally on the basis of this passage that Keynes's *General Theory* has been widely considered as an application, or extension, of the Marshallian 'short-period' to the aggregate framework (see, e.g., Kaldor 1960, P. Davidson 1978, Meade 1978, J. Robinson 1978, Harcourt and O'Shaughnessy 1985, Minsky 1990, Lim 1990). Asimakopoulous effectively summarizes the considerations which lie behind these interpretations:

Keynes's analysis takes place in Marshall's short period, a period of time during which the changes in productive capacity that occur continuously in a dynamic economy can be legitimately ignored, because on average over this period they are small relative

to the initial productive capacity. Marshall (...) provided an estimate of the length of his short period - 'a few months or a year' and Keynes's use of the short period is consistent with this frame (1989: 18).²

At the same time, he maintains the irrelevance of the traditional notion of long period in Keynes's analysis:

Long-period equilibrium does not play a significant role in Keynes's analysis. It appears in those parts of *The General Theory* that contain the central core of his analysis only in the nature of an aside. [...] Reference to [long-period equilibrium] values is for purposes of logical completeness in a Marshallian framework rather than for their relevance to his study (1989: 17).

Quite interesting, too, from the perspective of the present paper, is the following remark by Joan Robinson:

Keynes hardly ever peered over the edge of the short period to see the effect of investment in making addition to the stocks of productive equipment. He used to say: The long period is a subject for undergraduates (1978: 14).

Strangely enough she was the first economist who, in the paper entitled 'The long-period theory of employment' (J. Robinson 1937), set out to extend Keynes's analysis to a context in which changes of capital stock are explicitly considered. Subsequently, she abandoned her own model because it was based on the neoclassical principle of substitution between capital and labor, but what remained in the literature was this sort of terminological ambiguity between an analysis of structural dynamics (as, e.g., developed in Harrod 1939), which contains the study of the effects of changes in productive capacity on the level of national income and its growth path, and the wording of 'long period equilibrium' which, instead, should be confined to a situation in which a full adjustment of productive capacity to demand takes place.

On the opposite side, there is the interpretative approach of Eatwell and Milgate (1983), which tends to associate Keynesian equilibrium with 'a long-period position of classical type', where capacity is fully adjusted to the level and composition of demand³ but full employment is by no means guaranteed. According to these authors, the long-period position in classical economics is not associated with full employment and can be characterized, as in the Keynesian framework, by a condition of

² Practically the same wording is used by Meade (1978: 424): 'Keynes (1936) in *The General Theory* applied Marshall's short-period analysis to the whole macro-economic system instead of to one single firm or industry'. According to him, the period of time chosen by Keynes allows only for small changes in the productive capacity, which do not affect the total level of capital in the economy. This fixed capital is accompanied by a variable labor. (*ibid.*)

³ This adjustment is reached, as is well known, thanks to the operation of the Smithian competitive mechanism, which brings about a uniform rate of profit in all sectors.

underemployment of labor. They also argue a difference between the Marshallian short-period equilibrium and Keynes's model:

In the *General Theory*, Keynes's 'short-run' analysis is quite different in content from anything that is to be found in Marshall. For while this Keynesian short run refers to a set of circumstances where 'we take as given the existing skill and quantity of available labour etc...', it is invoked not in order to establish the possibility that complete adjustment to a long-run full employment equilibrium of the neoclassical kind will not occur, but rather in order to abstract from those more slowly working secular changes due to accumulation, technological progress and population growth or decline. This procedure [...] is more directly analogous to that traditionally adopted for the construction of a long-period theory (Eatwell and Milgate 1983: 10).⁴

Besides Eatwell and Milgate's interpretation, other contributions show the possibility to extend Keynesian theory to the long period (see, e.g., Nell 1983, Bhattacharjea 1987, O'Donnell 1989, Carvalho 1990, Amadeo 1992, Sebastiani 1992, Park 1994). Although they are quite well differentiated, they all maintain the relevance of Keynes's analysis in the long period and found their interpretations on textual and analytical elements which are present in the *General Theory* (in particular, the 'institutional' nature of the 'floor' of the interest rate in Chapter 17, or the negative impact of increasing accumulation on marginal efficiency of capital in Chapters 16 and 24).

The 'neoclassical' interpretations of Keynes's model are, by far, the best known. They impinge on what has been called the 'imperfektionist view' (Leijonhufvud 1968) or 'wage-rigidity view' (Dutt and Amadeo 1990): they tend, in fact, to attribute the result of unemployment equilibrium to the assumption of fixed monetary and/or real wages. In this group should be included not only the Neo-Classical Synthesis models (like, e.g., Modigliani 1944, 1963, Klein 1947, Hansen 1953) but also, by extension, most of the New Keynesian models (see, e.g., Lindbeck and Snower 1986, Shapiro and Stiglitz 1984). On the same side are also to be considered, from the perspective of the present paper, the interpretations which define Keynes's unemployment equilibrium as a 'disequilibrium' position (see, e.g., Clower 1965, Leijonhufvud 1968, Benassy 1975, Barro and Grossman 1976, Malinvaud 1977). The analytical elements which all these contributions share are two: (i) the fundamental idea that the unemployment equilibrium (or disequilibrium) emerges from the existence of certain rigidities in the economic system (in real and/or monetary wages or in prices), which also contribute to define and characterize a *short period* context; (ii) the implicit or explicit assumption that, once in the *long period*, these rigidities will disappear and the economy will naturally tend to a full employment level of national income.

Keynes's main work has come in for so much debate since its publication and, especially, over the second half of the 20th century, it is hardly surprising that the lack of consensus in the literature on the specific question dealt with here, too, was so extensive - ranging from the interpretations considering the *General Theory* as a

⁴ A quite different position is taken by Garegnani (1979, 1983), who denies the possibility of identifying Keynes's equilibrium with a 'long-period position of classical type'.

Marshallian short-period model to those attributing it with the characteristics of a long-period classical analysis. But what this very sketchy survey of the literature aims to show is that the very fact that so many meanings and contents are attributed to these concepts may have generated the difficulties in interpreting Keynes's aggregate model in this particular respect. Furthermore, this confusion in terminology does not favor comparison between (and an evaluation of) different interpretative approaches, nor does it facilitate comprehension of Keynes's own method of analysis. In particular, two uses of these concepts seem to be juxtaposed: one in which the distinction is purely logical and some analytical characteristics distinguish the short from the long period, without necessarily referring to a particular duration in historical time; the other, in which the distinction is, instead, chronological, in the sense that a specific length in terms of real time is attributed respectively to the context of short and long period and that it is with the simple passing of time that the system goes from the former to the latter.

3.2 Is the traditional period analysis adequate to interpret Keynes's aggregate model?

Direct examination of the *General Theory* can now help us to establish: first, to what extent the Marshallian distinction is applicable to Keynes's scheme and how fruitfully; secondly, to what extent the short-period 'imperfecionist view' is representative of Keynes's thought about the unemployment equilibrium.

In fact, when Keynes makes the assumptions underlying his model explicit, what he is doing is an application of the *ceteris paribus* procedure, as in Marshall's partial equilibrium analysis. But in Keynes's aggregate analysis there is no room to bring in any chronological content, referring to short or long period in real time, for two reasons in particular. First, because at the aggregate level the 'chronology' loses its sense, given that from industry to industry the productive capacity requires a different length of time for adjustment to demand conditions. Secondly, because Keynes seems interested in singling out some fundamental causal relations, independently of the duration of the period considered. A very good example of this logical conception of time is given by his notion of 'long-period employment' (CWK VII: 48), in which you can analytically define a certain level of aggregate income and employment corresponding to a given set of propensities and, in particular, to a given level of investment and state of expectations. In Keynes's words:

If we suppose a state of expectation to continue for a sufficient length of time for the effect on employment to have worked itself out so completely that there is, broadly speaking, no piece of employment going on which would not have taken place if the new state of expectation had always existed, the steady level of employment thus attained may be called the long-period employment corresponding to that state of expectation. It follows that, although expectation may change so frequently that the actual level of employment has never had time to reach the long-period employment corresponding to the existing state of expectation, nevertheless every state of expectation has its definite corresponding level of long-period employment (*ibid.*)

This definition of ‘long-period employment’ holds in a theoretical framework in which the capital stock does not affect supply (that is in a ‘logical short-period’).⁵ This example could suggest that the application of the traditional period analysis does not help to capture the essence of the methodological procedure adopted by Keynes.⁶

Returning to the given factors specified in Chapter 18 of the *General Theory*, the meaning attributed to the *ceteris paribus* clause seems very clear to Keynes, who explains:

This does not mean that we assume these factors to be constant; but merely that, in this place and in this context, we are not considering or taking into account the effects and consequences of changes in them (CWK VII: 245).

Thus, the factors indicated above are given not because they are constant – for example, with regard to the length of the period considered in the analysis – but because the economist makes the deliberate choice not to take into account, at that stage of the inquiry, the effects of their changes. He aims, rather, to isolate some ‘short’ and direct causal chains between the independent variables held to be significant and the final dependent variable of the model.⁷ In this case, Keynes focuses on the relation between the level of effective demand - linked to the three fundamental independent variables (propensity to consume, marginal efficiency of capital and interest rate) - and the level of income and employment, which is the *quaesitum* of his analysis.⁸

This is why the usual distinction between short and long period seems not to fit in very well with Keynes’s scheme. Indeed, in his work it was Keynes’s intention to abandon the Marshallian approach and make some further advance also from the point of view of method.⁹

As far as the ‘imperfectionist view’ is concerned, Keynes assumes as given the monetary wage not because he believes it to be constant in relation to the period considered (it would be flexible over a longer period), but because he decides not to take into account the effects of fluctuations in this variable on the dependent variable of his model. This choice can be explained as deriving, on the one hand, from the consideration that the monetary wage in the real world is institutionally determined through trade union bargaining, and, on the other hand, from the conviction (clearly

⁵ On this point, see Caravale (1992).

⁶ For an examination of Keynes’s equilibrium method seen as one of a logical type, conceived in order to cope with a non-deterministic dynamics of the economic system, and comparison with the Hicksian dynamic method of *Value and Capital* (Hicks 1939), see Sanfilippo (2000).

⁷ On Keynes’s method and on the relevance of ‘short’ causal chains in a logical conception of probability, see Carabelli (1988). On the causal method also compare with Marshall (1961: 638).

⁸ According to Togati (2005) the main difference between Keynes and the Neoclassics lies in the choice of a different set of “primary or causal variables” determining the equilibrium level of economic activity, which for Keynes would be money and expectations and for the Neoclassics preferences and resources.

⁹ It is not questioned here that Keynes might well have been influenced in some respects by the work of his master (Marshall’s *Principles*) and even more by the dissertation on the ‘Economics of Short Period’ written by his ‘favourite pupil’, Richard Kahn (see Raffaelli 2003; Marcuzzo 1996, 1997, 1998, Dardi 1983, Pasinetti 2007). In both cases, nevertheless, these works dealt with disaggregate analyses, whose methodology could not be transferred *tout court* to an aggregate analysis like that developed in the *General Theory*. It is a matter of fact that Keynes never referred to his own as a Marshallian short-period equilibrium applied to the economic system as a whole.

expressed by Keynes in Chapter 19 of the *General Theory*) that it is not possible to identify with sufficient certainty the direction of the effects of changes in monetary wage on the aggregate employment level, the link between the two variables being indirect. In Chapter 19 Keynes shows that automatic mechanisms able to guarantee full employment do not exist. The most promising way by means of which the reduction in nominal wages would favor an increase in employment - inducing a shift in the schedule of liquidity preference and so bringing about reductions in interest rates able to sustain investments and aggregate demand - does not ensure the result of full employment (CWK VII: 263-67).¹⁰

Keynes does not seem to be interested, at least at the abstract methodological level, in attributing a definite content in terms of historical time (one year, one month or one week) to his period of reference; indeed, his interest seems to lie, rather, in the logical character of the *ceteris paribus* clause. This does not mean that Keynes intended to elaborate a universal a-historical theory of the functioning of the economic system. On the contrary, his analysis is based on consideration of the institutional and historical aspects of capitalism. It is at the methodological level that Keynes seems to relegate to a secondary position the elements more specifically linked to duration in historical time.

Robertson's understanding of the *General Theory* seems to be in line with this interpretation. In fact, when examining Keynes's model in comparison with Swedish theory, on the one hand, and with Marshall's theory, on the other, he says:

I turn to the rival formulation of the immediate determinants of the rate of interest which has been given by Mr. Keynes. Instead of enquiring into what happens on the markets during an *interval* of time, it focuses attention on the position reached, as a result of previous market transitions, at a *moment* of time (Robertson 1940: 9, italics in the original text)¹¹.

Keynes's clear propensity to adopt a *ceteris paribus* procedure without chronological features could be read as a consequence of taking the concept of 'fundamental' uncertainty to differ from calculable risk in his theoretical scheme.¹² Factors modifying present circumstances and expectations about the future could intervene at any time, altering the direction of movement of the economy in a way that is not *a priori* predictable.¹³ In this context deterministic visions of the functioning of the economic system do not apply. The same can be said for any hypothesis of *constancy* in historical time of certain factors. This could explain why the traditional short-period method, with a specified chronological duration, cannot represent Keynes's analysis. On the other hand, a conception of long-period equilibrium viewed as the final

¹⁰ For an analysis of this chapter see, e.g., Dutt and Amadeo (1990) but also Hahn (1987).

¹¹ I am grateful to Professor Donald Moggridge, who has drawn my attention to the significance of Robertson's position on this point.

¹² In the article *The General Theory of Employment* (1937), published just after the beginning of the debate on the *General Theory*, Keynes explains what exactly he means by 'fundamental' uncertainty (see CWK XIV: 113-14). On the role of uncertainty in Keynes's theory see Shackle (1967), J. Robinson (1979), P. Davidson (1978), Carabelli (1988) and Vercelli (1998).

¹³ This impossibility regards both economic agents and economists. In the latter case, one of the main difficulties is the impossibility to formalize rigorously the revision process of expectations in the light of realized results.

result of an adjustment process taking place in historical time seems incompatible with Keynes's theory - no matter whether the above position is considered as an *optimal* condition (according to the Neoclassical tradition) or characterized by the full adjustment of the productive capacity to the level and composition of demand, without guarantee of full employment (as in the Classical tradition).

The aspects briefly recalled mark out the theory set out in the *General Theory* as differing, from the analytical point of view, from the previous theories (Tonveronachi, 1992). Keynes underlines this substantial difference in a passage in his well-known 1937 article. Having re-examined the development of economic theory, starting from Ricardo, through Marshall, Edgeworth and Pigou (considered as exponents of the same theory of the functioning of economic system), Keynes points out:

But these more recent writers like their predecessors were still dealing with a system in which the amount of the factors employed was given and the other relevant facts were known more or less for certain. This does not mean that they were dealing with a system in which change was ruled out, or even in which the disappointment of expectations was ruled out. But at any given time facts and expectations were assumed to be given in a definite and calculable form; and risks, of which, though admitted, not much notice was taken, were supposed to be capable of an exact actuarial computation (CWK XIV: 112-13).

The consideration of 'strong' uncertainty also influences the method of analysis. It is clear to Keynes that all economic variables, divided into given factors and independent variables, influence and determine the effective level of national income and employment, and that all these variables could take further investigation. But the economist is compelled to select variables, being conditioned also by the quantity and quality of the 'certain' information at his disposal, taking into account that in some cases he has absolutely no scientific or simply 'rational' (in the sense of sensible) bases upon which to construct and formulate well-founded arguments, i.e. arguments characterized by a high "degree of confidence" (CWK VIII: 3-16; CWK VII: 77-85).¹⁴

Furthermore, Keynes is aware of the interdependency between magnitudes and, consequently, of the feedback effects of the dependent variables on given factors. For instance, the employment level of the economic system might influence the existing technique (which was a given factor in the model), as well as the monetary wage, also given in Keynes's scheme. This limit involved in the use of the *ceteris paribus* assumption does not prevent application of the clause as a method for determining the final result of the model. Suffice it to relax the hypothesis (varying factors initially considered as given), and the analysis framework becomes more complex, but the nature of the relations previously identified does not change.¹⁵

¹⁴ Carabelli (1988), when examining the different kinds of causality in Keynes's theory, refers also to the concept of *causa cognoscendi*, showing the difficulties of economists and social scientists in finding causal relations in a context of 'fundamental' uncertainty.

¹⁵ Jossa (1981: 85) underlines that if the *ceteris paribus* clause is meant to single out the causal structure of a model, it would be right not to remove it. For example, if the given monetary wage hypothesis is useful to identify the major role of the causal chain going from the aggregate demand

4. Some possible explanations

It has been argued by the author elsewhere (Sanfilippo 2003) that the juxtaposition between a logical and chronological view of periods analysis was present also in Marshall, and this element can contribute to explaining the subsequent difficulties.

On the one hand, Marshall himself (1961: 312) reminds us that the distinction between periods in his analysis is neither rigidly fixed nor effectively existent in the real world. It is an instrument (of an essentially logical nature) to help economic theorizing. In fact, it is possible to move from the short to the long period in relation to the specific problem examined.

On the other hand, attributing a definite content in terms of historical time to short- and long-period equilibria and taking into account this duration in the choice of the factors taken as given in different cases – as he does in the famous example of the fish market (1961: 307-311) - Marshall seems to restrict the range of application of these tools. This does not imply that the Marshallian chronological distinction is not able to capture a concrete aspect of economic reality, related to entrepreneurial decisions regarding the level of productive capacity and its degree of utilization at a micro level; but simply that the extension of the same method to an aggregate context is by no means easy to realize.

In fact, what emerges quite clearly both in macroeconomic textbooks and the debate on the *General Theory* is that the application to aggregate models of methodological tools ‘invented’ for analysis of the equilibrium in a disaggregate context gives rise to confusion. If in the case of a single firm or industry the assumption of given productivity takes on a definite and concrete meaning, which can also fit with a particular and specified duration in historical time, so that the short-period as a ‘logical’ device can also have a chronological ‘short’ and definite duration, when this concept is extended to the aggregate, then the meaning becomes much more complicated, and any attempt to define it more precisely entails a loss in realism. At the aggregate level you can still apply a logical short period but it is much more difficult to give it a content in terms of historical time. One year can be a ‘short-period’ for some sectors (in which the productive capacity cannot vary) and a ‘very long period’ for other sectors in the economy, in which the level of equipment is much more flexible over the span of a year.

Finally, another element which contributes to generate misunderstandings is the habit, widespread in macroeconomic literature, to identify the long period with a full-employment and optimal position. It was Keynes who first criticized this habit and took a dim view of application of the traditional distinction between long and short period in explaining the functioning of economic systems. He clearly stated in his drafting of the *General Theory*:

to the level of employment in comparison to the relationship between salaries and employment and if, furthermore, this hypothesis corresponds to a typical feature of capitalistic economy, it should not be removed. In Chapter 19 of the *General Theory* Keynes removes it only to demonstrate that the result of unemployment equilibrium does not depend on this simplifying hypothesis.

Is the distinction between the Monetary Economy [a Keynesian-type economy] and the Real Wage Economy [a Neoclassical-type economy] partly the same as that between short-period economics and long-period economics, the fundamental assumption of the Real Wage Economy being one which is in fact satisfied in the 'long period'? The answer to this question is complicated by the doubt as to just what we mean, in this context, by 'long-period equilibrium', - a matter which Marshall has not explicitly settled for us. For there are three suggestions conveyed by the term, which are differently dominant in different occasions of its use. The first suggestion conveyed by the term 'long period' is that it relates to a position towards which forces spring up to influence the short period position whenever the latter has diverged from it. The second suggestion conveyed is that the long period position differs from short period positions in being a stable position capable *cet. par.* of being sustained, whilst short-period positions are *cet. par.* unstable and cannot be sustained. The third suggestion is that the long period position is, in some sense, an *optimum* or ideal position from the point of view of production, i.e. a position in which the forces of production are disposed and utilised to their best possible advantage. (...) For the root of the objection which I find to the theory under discussion [the neoclassical theory of employment], if it is propounded as a long-period theory, lies in the fact that (...) this theory is not really dealing with a generalised doctrine of the long period, but is concerned, rather, *with a special case*; i.e. with a long period position corresponding, in some or all of the senses of this term, to a *particular* assumed policy on the part of monetary authority.

On my view, there is no unique long-period position of equilibrium equally valid regardless of the character of the policy of the monetary authority. On the contrary there are a number of such positions corresponding to different policies. Moreover there is no reason to suppose that positions of long-period equilibrium have an inherent tendency or likelihood to be positions of optimum output (CWK XXIX: 54-55) (emphasis in the original text).

5. Conclusion

Both those interpretations which tend to relegate the validity of Keynes's theory to the short period, tracing it back to the Neoclassical model when the analysis is extended to the long period (e.g. Modigliani 1944), and those representations in modern macroeconomic textbooks which link the distinction between long and short period respectively to the coincidence, or non-coincidence, between actual and potential GDP, defined the latter as a full employment position,¹⁶ seem to use period analysis in a misleading way.

¹⁶ The criticism here is not directed at the possibility of defining, for purpose of analysis, the potential GDP as the level of income in which all resources are fully employed, but at the practice, common in macroeconomics, of identifying the short period as a context in which a differential exists between actual and potential GDP, and long period as a context in which this differential does not exist.

In particular, the view that, given enough time to adjust the capital stock, labor supply and other variables kept ‘in the pound’ in the short period, the economic system necessarily tends in historical time, by means of automatic mechanisms, towards an optimal long-period equilibrium or a position in which some specific conditions are fulfilled, corresponds neither to Keynes’s theory nor to his method.

On this point, Kregel (1983a: 96) states:

It is often said that if Keynes’ theory is taken out of the short period and made into long period theory then his approach would be the same as that of the orthodox. But Keynes’ theory is not short period in this sense of the term. It is not limited to a period of time so short that the capital stock cannot change. Rather it attempts to avoid analysing everything at once by applying a method which identifies a single aspect of the broader whole for analysis. The choice of the problem will then determine which aspects of the system should be given, not in the sense they are thought as unchanging, but that ‘the effect or consequences of changes in them’ are not taken directly into account. The capital stock is not assumed unchanged *over actual time*; rather any changes in it are left to one side to be considered later.

It is not denied here that the hypothesis of a given productive capacity is used by Keynes, nor that the *General Theory* is mostly built on this assumption. The idea suggested here is that this assumption should not be linked to the traditional distinction between short- and long-period analysis at a disaggregate level but, on the contrary, should be considered simply as an application of the *ceteris paribus* method, as a logical device to cope with continuous changes taking place in economic reality. This is why the assumption of fixed plants does not seem linked in any significant way to the length in historical time of the period considered in the analysis. The lack of this link can be attributed to the awareness of the fundamental role played by ‘strong’ uncertainty in the economy, and to the need to take this element into account at both the analytical and methodological levels.

As far as macroeconomics textbooks are concerned, the idea suggested here is that the use commonly made of period analysis proves not particularly useful, and often misleading. If a ‘Keynesian’ approach based on the explicitation of the *ceteris paribus* clause was adopted in the classification of different models, without reference to the traditional distinction between periods, the terminological and analytical confusion could be avoided.

In his biographical essay on Marshall, Keynes does not conceal his doubts. About short and long period, he writes:

All these are path-breaking ideas which no one who wants to think clearly can do without. Nevertheless, this is the quarter in which, in my opinion, the Marshall analysis is least complete and satisfactory, and where there remains most to do. As he says himself in the Preface to the first edition of the *Principles*, the element of time ‘is the centre of the chief difficulty of almost every economic problem’ (CWK X: 107).

With the analyses developed here we have examined just how well-founded this observation by Keynes eventually proved, taking into account, in particular, some examples of the way in which these concepts are currently used and adopted in macroeconomics.

Bibliography

- Amadeo, E.J. (1992) 'Equilibrium Unemployment in Keynes's *General Theory*: Some Recent Debates', *Contributions to Political Economy*, vol. 11, pp. 1-14
- Asimakopulos, A. (1984-85) 'Long-Period Employment in the *General Theory*', *Journal of Post-Keynesian Economics*, vol. 7, n. 2, pp. 207-213
- Asimakopulos, A. (1989) 'The Nature and Role of Equilibrium in Keynes's *General Theory*', *Australian Economic Papers*, vol. 28, n. 52, pp. 16-28
- Barro, R.J. and Grossman, H. (1976) *Money, Employment and Inflation*, Cambridge: Cambridge University Press
- Benassy, J.P. (1975) 'A Neo-Keynesian Disequilibrium Theory in a Monetary Economy', *Review of Economic Studies*, vol. 42, n. 4, pp. 503-523
- Bhattacharjea, A. (1987) 'Keynes and Long-Period Theory of Employment: a Note', *Cambridge Journal of Economics*, vol. 11, pp. 275-84
- Blanchard, O. (2006), *Macroeconomics*, Upper Saddle River, New Jersey: Pearson Prentice-Hall, 4th edn
- Carabelli, A. (1988) *On Keynes's Method*, London: Macmillan
- Caravale G. (1992) 'Keynes and the Concept of Equilibrium', in M. Sebastiani (ed.), *The Notion of Equilibrium in the Keynesian Theory*, London: Macmillan
- Carvalho, F.C. (1990) 'Keynes and the Long Period', *Cambridge Journal of Economics*, vol. 14, n. 3, pp. 277-90
- Chick, V. (1996) 'Equilibrium and "Determination" in Open Systems', *History of Economics Review*, n. 25, pp. 172-83
- Clower, R. (1965) 'The Keynesian Counter-revolution: a Theoretical Appraisal', in F.H. Hahn, F.H. and F.P.R. Brechling (eds), *The Theories of Interest Rates*, London: Macmillan
- Currie, M. and Steedman, I. (1990) *Wrestling with Time*, Manchester: Manchester University Press
- Dardi, M. (1983) *Introduzione to L'Economia del Breve Periodo*, R. Kahn, Torino: Boringhieri
- Davidson, P. (1978) *Money and The Real World*, London: Macmillan
- Davidson, P. (1991) *Controversies in Post-Keynesian Economics*, Aldershot: Edward Elgar
- Dutt, A.K. (1986-87) 'Wage Rigidity', *Journal of Post-Keynesian Economics*, n. 9, pp. 279-90
- Dutt, A.K. (1991-92) 'Expectations and Equilibrium: Implications for Keynes, the Neo-Ricardian Keynesians, and the Post-Keynesians', *Journal of Post-Keynesian Economics*, vol. 14, n. 2, pp. 205-224
- Dutt, A. K. and Amadeo, E. J. (1990) 'Keynes's Dichotomy and Wage-rigidity Keynesianism', in D.E. Moggridge (ed.), *Perspectives in the History of Economic Thought*, vol. 14, Aldershot: Edward Elgar

- Eatwell, J. (1983) 'The Long-Period Theory of Unemployment', *Cambridge Journal of Economics*, vol. 7, pp. 269-285
- Eatwell, J. and Milgate, M. (1983) (eds), *Keynes's Economics and the Theory of Value and Distribution*, London: Duckworth
- Garegnani, P. (1979) *Valore e Domanda effettiva*, Torino: Einaudi
- Garegnani, P. (1983) 'Two Routes to Effective Demand', in J.A. Kregel (ed.) *Distribution, Effective Demand and International Economic Relations*, London: Macmillan
- Hahn, F. H. (1984) *Equilibrium and Macroeconomics*, Oxford: Basil Blackwell
- Hahn, F.H. (1987) 'On Involuntary Unemployment', *Economic Journal*, vol. 97, pp. 1-16
- Hansen, A.H. (1953) *A Guide to Keynes*, New York: McGraw-Hill
- Harcourt, G.C. and O' Shaughnessy, T.J. (1985) 'Keynes's Unemployment Equilibrium: Some Insights from Joan Robinson, Piero Sraffa and Richard Kahn', in G.C. Harcourt (ed.), *Keynes and His Contemporaries*, London: Macmillan
- Harrod, R.F. (1939) 'An Essay in Dynamic Theory', *Economic Journal*, vol. 49, pp. 14-33
- Hicks, J. (1939) *Value and Capital*, 2nd edn, Oxford: Oxford University Press
- Jossa, B. (1981) 'Equilibri parziali o equilibri generali ? Considerazioni metodologiche elementari sulla teoria keynesiana', in A. Graziani, C. Imbriani and B. Jossa (eds), *Studi di economia keynesiana*, Napoli: Liguori
- Kahn, R.F. (1929) [1989] *The Economics of Short Period*, Fellowship Dissertation, London: Macmillan
- Kaldor, N. (1960) *Essays on Economic Stability and Growth*, London: Duckworth
- Kaldor, N. (1983) *Keynesian Economics After Fifty Years*, in D. Worswick and J. Trevithick (eds), *Keynes and the Modern World*, Cambridge: Cambridge University Press
- Keynes, J.M. (1971-89) *The Collected Writings of John Maynard Keynes*, CWK, D.E. Moggridge (ed.), London: Macmillan
- Keynes, J.M. (1921) *A Treatise on Probability*, reprinted in CWK VIII, 1973
- Keynes, J.M. (1924) 'Alfred Marshall 1842-1924', *Economic Journal*, vol. 34, reprinted in CWK X, *Essays in Biography*, 1972
- Keynes, J.M. (1936) *The General Theory of Employment, Interest and Money*, CWK VII, 1973
- Keynes, J.M. (1937) 'The General Theory of Employment', *Quarterly Journal of Economics*, n. 51, pp. 209-223, reprinted in CWK XIV, 1973
- Keynes, J.M. (1989) *The General Theory and after, Supplement*, CWK XIX
- Klein, L. (1947) *The Keynesian Revolution*, New York: Macmillan
- Knight, F.H. (1921) *Risk, Uncertainty and Profit*, Chicago: Chicago University Press
- Kregel, J.A. (1976) 'Economic Methodology in the Face of Uncertainty: the Modelling Methods of Keynes and the Post-Keynesians', *Economic Journal*, vol. 86, pp. 209-225
- Kregel, J.A. (1983a) 'Conceptions of equilibrium, Conceptions of Time and conceptions of Economic Interaction', in G. Caravale (ed.), *La crisi delle teorie economiche*, Milano: Franco Angeli
- Kregel, J.A. (1983b) 'The Microfoundations of the 'Generalisation of the General Theory' and 'Bastard Keynesianism': Keynes's Theory of Employment in the Long and the Short Period', *Cambridge Journal of Economics*, vol. 7, pp. 343-61

- Krugman, P. and Wells, R. (2005) *Macroeconomics*, New York and Basingstoke: Worth Publishers, 1st edn
- Leijonhufvud, A. (1968) *On Keynesian Economics and the Economics of Keynes*, London: Oxford University Press
- Lim, S.K. (1990) 'Keynes's Long-Period Theory of Employment: the Evidence Against', *The Manchester School of Economic and Social Studies*, vol. 58, pp. 66-73
- Lindbeck, A. and Snower, D.J. (1986) 'Wage Setting, Unemployment and Insider/Outsider Relations', *American Economic Review*, vol. 76, n. 2, pp. 235-39
- Lipsey, R.G. and Chrystal, K.A. (2004) *Economics*, Oxford: Oxford University Press, 10th edn
- Maki, U. and Piimies, J.K. (1998) 'Ceteris Paribus', Entry in J.B.Davis, D.W. Hands, U. Maki (eds), *The Elgar Handbook in Economic Methodology*, Cheltenham: Edward Elgar, pp. 55-59
- Malinvaud, E. (1977) *The Theory of Unemployment Reconsidered*, Oxford: Blackwell
- Marcuzzo, M.C. (1996) 'Joan Robinson and Richard Kahn: the Origin of Short Period Analysis', in M.C. Marcuzzo, L. Pasinetti, A. Roncaglia (eds), *The Economics of Joan Robinson*, London: Routledge
- Marcuzzo, M.C. (1997) 'Short Period Economics in Retrospect', in P. Arestis, G. Palma, M. Sawyer (eds), *Capital Controversy, Post-Keynesian Economics and the History of Economic Thought, Essays in Honour of Geoff Harcourt*, London: Routledge, vol. 1, pp. 398-409
- Marcuzzo, M.C. (1998) *La collaborazione tra Keynes e Kahn, dal Treatise alla General Theory*, in N. De Vecchi and M.C. Marcuzzo (eds), *A cinquant'anni da Keynes*, Pavia: Unicopli
- Marshall, A. (1961) *Principles of Economics*, London: Macmillan, 8th edn
- Meade, J. (1936-37) 'A Simplified Model of Mr Keynes System', *Review of Economic Studies*, vol. 4, pp. 98-107
- Meade, J. (1978) 'The meaning of "Internal Balance"', *Economic Journal*, vol. 88, n. 352, pp. 423-35
- Milgate, M. (1982) *Capital and Employment: A Study of Keynes's Economics*, London: Academic Press
- Minsky, H. (1975) *John Maynard Keynes*, New York: Columbia University Press
- Minsky, H. (1990) 'Sraffa and Keynes: Effective Demand in the Long Run', in K. Bharadway and B. Schefold (eds), *Essays on Piero Sraffa: Critical Perspectives on the Revival of Theory*, London: Unwin Hyman, pp. 362-71
- Modigliani, F. (1944) 'Liquidity Preference and the Theory of Interest and Money', *Econometrica*, n.12, pp. 45-88
- Modigliani, F. (1963) 'The Monetary Mechanism and Its Interaction with Real Phenomena', *Review of Economics and Statistics*, vol. 45, n.1, part 2, Suppl., pp. 79-107
- Nell, E.J. (1983) *Keynes after Sraffa: the Essential Properties of Keynes's Theory of Interest and Money*, in J.A. Kregel (ed.) *Distribution, Effective Demand and International Economic Relations*, London: Macmillan
- O'Donnell, R. (1989) *Keynes: Philosophy, Economics and Politics. The Philosophical Foundations of Keynes's Thought and their Influence on his Economics and Politics*, London: Macmillan
- Opie, R. (1931) 'Marshall's Time Analysis', *Economic Journal*, vol. 41, n. 162, pp. 199-215

- Panico, C. and Petri, F. (1987) *Long Run and Short Run*, in *The New Palgrave Dictionary*, London: Macmillan
- Park, M.S. (1994) 'Keynes's Theory of Employment: Short-Period Analysis in a Long-Period Framework', *Contributions to Political Economy*, vol. 13, pp. 45-68
- Pasinetti, L.L. (2007) *Keynes and the Cambridge Keynesians*, Cambridge: Cambridge University Press
- Patinkin, D. (1965) *Money, Interest and Prices: An Integration of Monetary and Value Theory*, New York: Harper Row
- Patinkin, D. (1990) 'On Different Interpretations of the *General Theory*', *Journal of Monetary Economics*, n. 26, pp. 205-43
- Potestio, P. (1994) 'Posizioni di lungo periodo e equilibrio keynesiano di breve periodo', in Caravale G. (ed.), *Equilibrio e teoria economica*, Bologna: Il Mulino
- Potestio, P. (1995) 'On the Long-Run Interpretations of Keynes's *General Theory*', *Economie Appliquée*, vol. 48, n.1, pp. 5-30
- Raffaelli, T. (2003) *Marshall's Evolutionary Economics*, London: Routledge.
- Robertson, D.H. (1940) *Essays in Monetary Theory*, London: P.S. King
- Robinson, J. (1937) 'The Theory of Long-Period Unemployment', in *Essays in the Theory of Employment*, London: Macmillan
- Robinson, J. (1978) *Contributions to Modern Economics*, Oxford: Blackwell
- Robinson, J. (1979) 'History versus equilibrium', in *Collected Economic Papers*, Vol. V, Oxford: Blackwell
- Sanfilippo, E. (2000) *General Theory: Equilibrio di breve periodo o analisi dinamica?*, Tesi di dottorato, Biblioteca Nazionale di Roma e di Firenze, ottobre 2000
- Sanfilippo, E. (2003) 'Period Analysis and *Ceteris Paribus* Assumption in Marshall and Keynes', *International Journal of Applied Economics and Econometrics*, vol.11, n.1, pp. 109-132
- Sebastiani, M. (1992) (ed.) *The Notion of Equilibrium in the Keynesian Theory*, London: Macmillan
- Shackle, G.L.S. (1963) 'I tre significati del tempo nella trattazione economica marshalliana', *Rivista Internazionale di Scienze economiche e Commerciali*, vol. X, pp. 38-52
- Shackle, G.L.S. (1967) *The Years of High Theory*, Cambridge: Cambridge University Press
- Shapiro, C. and Stiglitz, J.E. (1984) 'Equilibrium Unemployment as a Worker Discipline Device', *American Economic Review*, vol. 74, n. 3, pp. 433-44
- Stiglitz, J.E. (1997) *Principles of Macroeconomics*, New York and London: W.W. Norton and Company, 2nd edn
- Tonveronachi, M. (1983) *J.M. Keynes: dall'instabilità ciclica all'equilibrio di sottoccupazione*, Roma: La Nuova Italia Scientifica
- Tonveronachi, M. (1992) 'Keynes and Equilibrium: A Note', in M. Sebastiani (ed.), *On the Notion of Equilibrium in the Keynesian Theory*, London: Macmillan
- Toye, J. (1998) 'In the Long Run we are All Dead', in S. Sharma (ed.), *John Maynard Keynes, Keynesianism in the Twenty-first Century*, Cheltenham: Edward Elgar
- Togati, D. T. (2005), 'On the generality of the *General Theory*', paper presented at the Storep Annual Meeting, Siena 2005, mimeo
- Vercelli, A. (1998) (ed.) *Incertezza, razionalità e decisioni economiche*, Bologna: Il Mulino

Vicarelli, F. (1983) 'Dall'equilibrio alla probabilità: una rilettura del metodo della *Teoria Generale*', in *Attualità di Keynes*, Bari: Laterza

Whitaker, J.K. (1975) 'The Emergence of Marshall's Period Analysis', *Eastern Economic Journal*, vol. 8, pp. 15-29