Escaping from a Blind Alley: Disequilibrium in the Dynamic Analysis of Harrod and Kalecki

J W Nevile and Peter Kriesler

Escaping from a blind alley: disequilibrium in the dynamic analysis of Harrod and Kalecki

J W Nevile and Peter Kriesler
School of Economics
University of New South Wales

Abstract

The pioneers of dynamic Keynesian economics, Harrod and Kalecki, began with an analysis of the trade cycle, but are remembered for their contributions to growth theory. Unlike most twentieth century growth theory, they both had a major focus on disequilibrium situations and an examination of this aspect of their theory is the purpose of this paper.

Harrod distinguished three stages in his dynamic analysis. The first was the derivation of the fundamental equation and consequent theorems. Fundamental meant underlying: even apart from random factors the equation may never hold exactly in real life. In the second stage, detailed analysis was made of the factors (in addition to the fundamental equation) which have a systematic effect on the path the economy follows. The final stage is policy prescriptions. Except in his 1936 book on the trade cycle, Harrod did relatively little "second stage" work but this did not stop him putting forward policy prescriptions. This three stage structure of analysis contributed to the widespread misunderstanding of the nature of his fundamental equation leading to a widely accepted view of a Harrod growth model which was completely different to what Harrod thought he was putting forward.

Kalecki, on the other hand, rejected what Harrod had called "first stage analysis" as being of little interest. His main criticisms of growth theory were aimed at, what he saw, as the vacuousness of such theorising. Instead, his work concentrated on second and third stage analysis, that is, in attempting to understand the non-equilibrium, dynamics of the economy with a view towards policy prescription. For this reason, Kalecki's contribution was less open to misunderstanding than was Harrod's.

Escaping from a blind alley: disequilibrium in the dynamic analysis of Harrod and Kalecki

" The truth of the matter seems to be that steady states are so minutely little removed from stationary states that we cannot sensibly regard them as contributions to the theory of growth at all. They are a blind alley and it is high time we got out of it." A reaction to growth theory, as portrayed by Hahn and Matthews (1964), in a manuscript privately circulated by D.B. Butt.[1]

Harrod and Kalecki were independently the pioneers of dynamic Keynesian economics, where Keynesian is used to denote economic theories and models in which output is determined by aggregate demand. Their pioneering attempts were in trade cycle theory and that story was told in a previous paper to this conference (Nevile and Kriesler, 2005). Both are more widely remembered today for their contributions to Keynesian growth theory. Unlike much of 20th century growth theory, in both cases their work had a major focus on disequilibrium situations and an examination of that is the purpose of this paper. Correctly understood this focus kept their analysis relevant to the real world.

Disequilibrium in Harrod's dynamics

At the core of Harrod's dynamic economics are a definition of dynamic analysis and three axioms, or to be more precise, three truths that are self-evident given Harrod's methodological principles and values. Harrod's most succinct expression of the definition is that in dynamic analysis "the unknowns in the

---

[1] This manuscript was an outcry against the predominant type of growth theory described in Hahn and Matthews survey article not a criticism of the views held by Hahn and Matthews themselves.

equations to be solved will not be rates of output per annum but increases or decreases in the rates of output per annum"(1948, p 4). The same would, of course, be true with respect to other macro variables related to output.

The first axiom is that there exists the possibility of an equilibrium rate of growth in a capitalist economy. While the nineteen thirties may have seemed an exception to the rule, in the longer run capitalist economies did tend to growth, hence long run dynamic economics was about growth not decreases in output. But Harrod went further and asserted that just as static economics was fundamentally about static equilibrium positions, a dynamic equilibrium, or an equilibrium rate of growth, is fundamental to dynamic economics. Harrod (1939, p. 14) begins with a brief description of static economics and then goes on to say

> "It has for some time appeared to me that it ought to be possible to develop a similar ... [framework] to meet the situation in which certain forces are operating steadily to increase or decrease certain magnitudes in the system. The consequent "theory" .... should provide a framework of concepts relevant to the study of change analogous to that provided by static theory for the study of rest"

The opening paragraph of Harrod (1939) is elaborated in the first nine pages of Harrod (1948) leading up to the statement "in the dynamic field it is necessary to know what the steady lines of advance would be as a basis for analysing why actual lines of advance depart from them and behave as they do" (pp 9-10).

The second axiom is that this equilibrium is unstable. Harrod, no doubt, thought these two axioms were valid deductions from the economic history of capitalist economies, but their place in his thinking was much closer to axioms than empirical conclusions. Growth could be possible without the existence of an equilibrium rate of growth. With respect to the trade cycle, Harrod felt that the instability of dynamic equilibrium was a logical prerequisite for the existence of trade cycles since otherwise the rate

3

of growth would quickly return to the equilibrium rate. This quick return could be slowed by the effect of various frictions and there could be a cyclical effect due to lags - which Harrod regarded as an important type of friction - but the true cause of the trade cycle should be able to be demonstrated in an ideal world in which there were no frictions. His "fundamental equation"[2] $Gw = Cr/s$ gave the conditions for the warranted (or equilibrium) growth rate and, in Harrod's mind at least, why that equilibrium was unstable. This enabled at least a sketch of trade cycle theory which showed the underlying causes of the cycle.[3]

Harrod (1938a) sets out a methodological position which makes natural the adoption of these two axioms. However, it helps to understand why Harrod said what he did in the controversies about his economic dynamics if one realises that for Harrod they were also axioms that exemplified the meaning of the Greek root of the word axiom - a fitting or worthy proposition[4]. The first axiom embodies the great value Harrod put on continuity in the development of economics. Similarly, his second axiom, that the equilibrium rate of growth is unstable, embodies his value that economics should be able to explain the fundamental nature of economic phenomena, in this case the trade cycle.

The third axiom is about the unity of dynamic analysis. In its simplest form it states that it is not fruitful to abstract from growth when analysing the cycle: "the trade cycle we know is conditioned by its occurrence in a dynamic (growing) economy " (Harrod, 1948, p.12). More generally Harrod felt it important, at whatever level of abstraction one was operating, to have a unified dynamic theory which was capable of analysing both growth and cycles. Thus, his "fundamental" dynamic analysis could analyse both growth and cycles. But this was not the end of his unified analysis. While the fundamental

---

[2] There are slight but confusing changes in notation between Harrod (1939) and Harrod (1948). In this paper the notation in Harrod, 1948 is used, as Harrod himself tended to do after 1948.
[3]See e.g. Harrod (1948, p.89-91)
[4] As the Shorter Oxford English Dictionary translates the Greek root.

growth theorems could not be a complete analysis of any actual trade cycles they provided an essential element of that analysis. Cycles could not be analysed without using the growth equations.

> "It is far from my purpose to give a finished theory of the trade cycle. Lags, psychological, monetary and other factors, no doubt play their part. I should suggest that no theory can be complete which neglects the fundamental causes of instability expressed in the equations which have been set out" (Harrod, 1948, p.89).

The influence also went the other way. Harrod's fundamental growth equations were very general. Any complete analysis required consideration of the cycle: "the value of warranted rate depends on the phase of the trade cycle and the level of activity" (Harrod, 1939, p.30).

This third axiom is crucial in understanding Harrod's analysis and the controversy that surrounded it. Harrod did think that, by making assumptions which abstracted from all real world complications including lags, it was possible to lay bare the underlying causes of growth and cycles, but only at a very fundamental or general level. Any analysis of what actually happens in the real world, or might be expected to happen, required consideration of at least some of these complications.

Thus Harrod distinguished two levels, or stages, of dynamic analysis. The first consisted of his fundamental theorems about the existence and instability of equilibrium growth. But fundamental for Harrod meant underlying. Even apart from random errors, his fundamental equations might never be observed in the real world. Complete or finished theories required incorporation of other factors that systematically influenced economic variables. Except in his first book on the trade cycle, in his dynamic analysis Harrod gave much less attention to this second level. He did, however, not hesitate to work at another level and put forward policy descriptions though these did not receive a great deal of attention. Once full academic activity resumed after the Second World War, it was Harrod's fundamental equations which were the focus of academic interest and discussion. This discussion

increased rather than reduced misunderstanding of what Harrod was saying and culminated in the textbook "Harrod-Domar growth model".

Those aware of the discussion of Harrod's dynamic economics in the nineteen forties and early nineteen fifties will notice a striking omission in this list of axioms. Despite the controversy it engendered Harrod's assumption that dynamic economics describes what is happening at a moment in time is more a simplifying assumption than an axiom. At the highest level of abstraction it is indeed an axiom and one that Harrod emphasised for at least two reasons. First he thought, correctly, that his concept of dynamic economics was completely different from that of Frisch and later, Samuelson, and wished to emphasise this.[5] For Frisch and Samuelson dynamic paths were determined by the technical properties of difference equations. These took place around an equilibrium path given exogenously. For Harrod, as we have seen, the equilibrium rate of growth and fluctuations around it were an integrated phenomenon with a complete explanation of either growth or cycles incorporating elements of the other. Secondly, for Harrod dynamic equilibrium was something that occurred at each and every moment of time and meant that, *ceteris paribus*, the equilibrium rate of growth would continue. However, Harrod was aware that, even in equilibrium, *ceteris* often was not *paribus*. Indeed the essence of his trade cycle theory was that the parameters determining equilibrium inevitably changed as growth continued (Nevile and Kriesler, 2005). By focusing on a moment in time when discussing the equilibrium rate of growth, Harrod could ignore these parameter changes.

Nevertheless, Harrod recognised that, except at the highest level of abstraction, focusing on a moment of time was just a simplifying assumption. In Harrod, 1939, p 16 the derivation of the equilibrium rate of growth starts out by defining the rate of growth as the difference in output between two successive

---

[5] See Nevile (2003) for a discussion of Harrod's early views on this. Harrod (1951) reiterates his position and makes it even more explicit.

periods divided by the level of output in the first period. This is followed by the rider that the period is assumed to be short. Later in the article this short period becomes "a single point of time" (p 24) but it is pointed out that entrepreneurs take time to recognise and react to a change in the actual rate of growth and six months is suggested as a plausible typical reaction time. This is just one of many examples that could be given. Indeed Harrod (1938b) stated that "a lag is essential to this [Harrod's] account of oscillatory behaviour" (p. 269).

In the core of Harrod's dynamic economics set out above, the part he defended most strongly was the definition of dynamic analysis. The whole of Chapter 1 in Harrod (1948) is devoted to this defence.[6] The reason for this was twofold. First Harrod felt very strongly that his definition of dynamic economics and the boundary it laid down between statics and dynamics was the key to the successful development of economic theory. He believed that the lack of a clear distinction between statics and dynamics "has led to much confusion and fallacy in recent work" (1948, p.1) and the alternative definition to his, which at that time was much more widely accepted, was likely to "make confusion worse confounded" (1948, p.2). Secondly, not only for reasons of esteem but also because he felt that the alternative approach was so wrong-headed, Harrod wanted to distinguish his approach as sharply as possible from the work of those advocating the alternative approach; at that time notably Frisch, Harberler, Hicks and Samuelson. The emphasis on dynamics being concerned with rates of growth, combined with the use in Harrod's analysis of the simplifying assumption that focused on growth rates at an instant of time contributed to the widespread view that Harrod was concerned with the sort of abstract equilibrium growth analysis which David Butt found of such little value. This interpretation of Harrod's theory was completely wrong.

---

[6] The defence includes what seem to be, sixty years later, confusing digressions about current issues on the way economic theory was developing. These were relevant since Harrod thought his dynamics was the best way for economic theory to develop.

Harrod did hold that at the most abstract level of analysis there was a basic "antimony" between the multiplier which depended on the ratio of the level of savings to the level of income and the accelerator which relates the level of investment to the rate of change of that income (Harrod, 1951).However as pointed out above, Harrod's equilibrium analysis was based on period analysis. Moreover, this was explicitly only a first stage analysis with any complete analysis incorporating much disequilibrium analysis; inevitably so since analysis of the trade cycle could not be separated from that of equilibrium growth.

In this respect it is instructive to look at Harrod's response to commentators on his theory. Three years after the publication of Harrod (1948), Harrod published an article reacting to publications by Samuelson, Hicks, Baumol and Alexander (Harrod, 1951). As one would expect Harrod emphasises the differences between his work and that of Samuelson, but a statement later in the article supports more generally the arguments in the previous paragraph.

> "Mr Baumol appreciates ......that there is a contrast between my views and those of Professor Samuelson, but I strongly resist his interpretation that my study is "normative" while Professor Samuelson's relates to "what is in fact likely to occur" (p. 271)

Further confirmation of arguments in the previous paragraph can be found in Harrod (1951). For example, on page 263 Harrod accepts "an elegant proof" of his instability result by Alexander. This proof results from manipulating a second order linear difference equation. Harrod also accepts a criticism by Alexander that his equation for the equilibrium rate of growth depends on a particular assumption about entrepreneurial expectations which may or may not accord with the facts (pp 271-272). His proof that substituting more general versions of this assumption does not affect his conclusion is cast in terms of (Robertsonian) "day one day two" analysis. The reason why Harrod

accepted the use of some difference equation analysis but completely rejected the approach of Samuelson (1939) is because of the difference in the concept of economic dynamics behind the two approaches. For Samuelson the cycle was solely due to the size of the parameters in the equations and as Hicks (1950) pointed out there were plausible values of these parameters which did not result in cycles in Samuelson's analysis. Cycles were not inherent in capitalist economies but were the result of frictions and even these frictions only produced cycles when crucial parameters had particular values. This explanation of Harrod's apparently inconsistent attitude to period analysis is upheld by his approval, in a letter written in 1962, of Nevile (1962).[7] In this article a non-linear third-order difference equation incorporating a flexible accelerator is used to represent Harrod's fundamental equation and his conclusions are confirmed with completely general values of the parameters. Harrod's approval of this representation of his fundamental equation by such a complex difference equation shows that it was not the technical nature of Samuelson's work that Harrod objected to, but the dependence on particular values of the parameters to produce cycles. However, the "Harrod versus Samuelson" controversy encouraged the view that Harrod's growth theory was just an analysis of equilibrium growth paths.

Harrod's sharp distinction between his work and that of Samuelson and others he called the econometricians was not the only reason for the widespread misinterpretation of Harrod's work. Unfortunately, while Harrod clearly and explicitly recognised that periods of time must be involved in any real world analyses, at least in disequilibrium situations[8], he sometimes slipped into "instant of time" analysis. For example in Harrod (1948) he argued

---

[7] This letter written to Nevile is reproduced as the appendix to Nevile (2003).
[8] Harrod (1948, p. 132) argues that when there is steady growth a lag only changes slightly the numerical value of the growth rate and is of no significance. The same point is made in Harrod (1939, p.20)

"G [the actual growth rate of output] is a quantity determined from time to time by trial and error, by the collective trials and errors of vast numbers of people. It would be great luck if their collective appraisals caused them to hit *precisely* on the value Gw [the equilibrium growth rate]. But if they do not their experience will tend to drive them farther and farther from it" (Harrod, 1948, p 86), (emphasis added).

An additional cause of confusion for some was Harrod's tendency to discuss policy with respect to the trade cycle before much analysis on level 2 about the causes of the cycle. For example Harrod (1948) has one chapter on the fundamental dynamic theorems, half a chapter on contra-cyclical policy generally and one chapter on the role of interest rates in monetary policy. A tentative theory of the trade cycle is set out in less than three pages in the chapter entitled "Fundamental Dynamic Theorems". This chapter also has a discussion of contra-cyclical policy. Harrod's general emphasis on policy questions, apparently on the basis of analysis using his fundamental equations,[9] was one reason for the attention given to the "instant in time" simplifying assumption and the treatment of Harrod's fundamental equations as a complete model in its own right. The well known emphasis on growth theory and relatively little attention given to the trade cycle in Harrod (1939)[10] also, of course, contributed to this tendency. As well, Harrod's use from time to time of inappropriate "instant in time" analysis noted above added to the tendency in the profession to treat Harrod's analysis of the fundamental equations as a complete growth model.

Whatever the reason, the assumption that Harrod's analysis of the fundamental equations was a complete growth model became very widespread very quickly. For example, in the article commented on in Harrod (1951), Baumol (1948) realised that Harrod had two levels of analysis, but took the analysis of the fundamental growth equations, designed "to approximate the situation at a point of

---

[9] The subtitle of Harrod (1948) is "Some Recent Developments of Economic Theory and their Application in Policy"
[10] See Besomi (1996a and 1996b) for a discussion of this and how it came about.

time" (p.607n), to be the basic model with Harrod's discussion of the trade cycle "imposed on his system, so to speak, from the outside" (p.606n). Baumol has no recognition that the growth equations and the trade cycle analysis are indissolubly linked and the complete theory is at the second level of abstraction which goes beyond equilibrium equations to behavioural equations in disequilibrium situations.

Baumol's article is, of course, just an early example of many.[11] The view that Harrod's dynamic theory was a model of equilibrium growth paths and their instability soon became the conventional wisdom. As early as 1956, Hamberg's textbook, which was in many ways an excellent book, drew on the work of Baumol in its exposition of Harrod's fundamental equations, largely discussed Harrod's trade cycle analysis in the context of whether average propensity to save could vary enough with income to offset the instability of the equilibrium growth rate and showed little awareness of the more generally integrated nature of growth and cycle theory in Harrod's dynamic analysis. Later textbooks went far further in transforming Harrod's dynamic theory into what became known as the Harrod-Domar growth model.[12] Thus, the richness of Harrod's approach to disequilibrium situations was lost, contributing to the sterility of much of growth theory.

Kalecki's Growth analysis: Trend and Cycle

Kalecki acknowledged the importance of both equilibrium growth and the cycle in Harrod's work, but was critical of the concept of equilibrium growth as being at all useful. For Kalecki, the main purpose of growth theory was to understand the dynamics of economic growth of the type of economy being

---

[11] See Besomi (1998) for an account of the misinterpretation of Harrod's dynamic economics

[12] Only three years later a very well known book (Allen 1959) did not mention Harrod in the chapters on the trade cycle and spoke only of the Harrod-Domar model in the material on growth.

analysed, which, for capitalist economies, implied dynamic disequilibrium analysis in the form of business cycles and trends. His work concentrated on Harrod's second and third stages of analysis, that is, in attempting to understand the non-equilibrium, dynamics of the economy with a view towards policy prescription. In doing so, he stressed the importance of starting with the institutional structure of the economy being considered, rather than with a general theory:

> "the institutional framework of a social system is a basic element of its economic dynamics and thus of the theory of growth relevant to that system. … there is a tendency in Western economics - which shows at present considerable interest in the theory of economic growth - to deal with something like a general theory of growth working on models fairly remote from the realities of the present capitalist, socialist or 'mixed' economies….. There thus arises a situation which is not infrequent in the history of economic thought: theories are being created which raise problems of great interest but are not very conducive to understanding what actually happened, is happening or should be happening. Kalecki (1970) p.111

In particular, when analysing capitalist economies, Kalecki argued that the problem of effective demand plays an important role not only in short run analysis, but also in the analysis of dynamics and growth. As a result, he was critical of much of the conventional analysis of growth which ignored or assumed away problems of effective demand. He believed that dynamic analysis needed to proceed along the line of cycle and trend, rather than simply analysis of growth paths.

> But, from the time the discussion of economic dynamics has concentrated on problems of *growth* the factor of effective demand was generally disregarded. Either it was simply *assumed* that in the long run the problem of effective demand does not matter because apart from the business cycle it need not be taken into consideration; or more specifically the problem the problem was approached in two alternative fashions: (1) The growth is at an equilibrium (Harrodian) rate , so that the increase in investment is just sufficient to generate

12

analysed, which, for capitalist economies, implied dynamic disequilibrium analysis in the form of business cycles and trends. His work concentrated on Harrod's second and third stages of analysis, that is, in attempting to understand the non-equilibrium, dynamics of the economy with a view towards policy prescription. In doing so, he stressed the importance of starting with the institutional structure of the economy being considered, rather than with a general theory:

> "the institutional framework of a social system is a basic element of its economic dynamics and thus of the theory of growth relevant to that system. … there is a tendency in Western economics - which shows at present considerable interest in the theory of economic growth - to deal with something like a general theory of growth working on models fairly remote from the realities of the present capitalist, socialist or 'mixed' economies….. There thus arises a situation which is not infrequent in the history of economic thought: theories are being created which raise problems of great interest but are not very conducive to understanding what actually happened, is happening or should be happening. Kalecki (1970) p.111

In particular, when analysing capitalist economies, Kalecki argued that the problem of effective demand plays an important role not only in short run analysis, but also in the analysis of dynamics and growth. As a result, he was critical of much of the conventional analysis of growth which ignored or assumed away problems of effective demand. He believed that dynamic analysis needed to proceed along the line of cycle and trend, rather than simply analysis of growth paths.

> But, from the time the discussion of economic dynamics has concentrated on problems of *growth* the factor of effective demand was generally disregarded. Either it was simply *assumed* that in the long run the problem of effective demand does not matter because apart from the business cycle it need not be taken into consideration; or more specifically the problem the problem was approached in two alternative fashions: (1) The growth is at an equilibrium (Harrodian) rate , so that the increase in investment is just sufficient to generate

effective demand matching the new productive capacities which the level of investment creates. (ii) Whatever the rate of growth the productive resources are fully utilized because of long-run price flexibility: prices are pushed in the long run in relation to wages up to the point where the real income of labour (and thus its consumption) is enough to cause the absorption of the full employment national product…….. It is generally known that the tend represented by case (1) is unstable …. Nor do I subscribe to the long-run price flexibility underlying the theories of type (ii). The monopolistic and semi-monopolistic factors involved in fixing prices – deeply rooted in the capitalist system of all times – cannot be characterized as temporary short-period price rigidities but affect the relation of prices and wages costs in both the course of the business cycle and in the long run.

To my mind the problem of the long-run growth in *laisser-faire* capitalist economy should be approached in precisely the same fashion as that of the business cycle. Kalecki (1970) p.111-112 Emphasis in original

Elsewhere, Kalecki is critical of the approach to growth which views it as a "moving equilibrium rather than adopting an approach similar to that applied in the theory of business cycles." (Kalecki 1968 p. 435).

In other words, Kalecki rejected Harrod's first axiom about the possibility of an equilibrium rate of growth. In addition, the main factors effecting growth were significantly influenced by the actual path the economy takes, so that long run growth is crucially dependant on the short run path of the economy.

Kalecki's position on the interrelation between trend and cycle developed and changed during his life. Initially, Kalecki separated the analysis of cycle and trend, considering the "pure" cycle devoid of trend. However, he came to reject this separation (Kalecki 1968 p. 434-435), and adopt a position closer to Harrod's third axiom. Nevertheless, a fairly consistent theme in Kalecki's writing on the matter was that the trend would be around a "static" position, unless there were exogenous, or semi-

exogenous shocks provided by, for example, innovations. As a result, he denied that the long-run trend could have a separate existence to the cycle.

For the understanding of growth in capitalist economies, Kalecki distinguishes two relations,. The first is the analysis of effective demand given the level of investment, while the second is the determination of investment. It is the interrelation of these which determines the growth path of the economy, and which is heavily influenced both by the past and by the actual path which the economy takes. In taking this approach, Kalecki stresses the importance of both the traverse path determinacy, and of the importance of seeing the long run as the direct result of a series of short runs:

> In fact, the long-run trend is only a slowly changing component of short-period situations; it has no independent entity, and the two basic relations mentioned above should be formulated in such a way as to yield the trend-cum business cycle phenomenon. Kalecki 1968 p. 434

> It follows that in our approach the rate of growth at a given time is a phenomena rooted in past economic, social , and technological developments rather than determined fully by the coefficients of our equations as is the case with the business cycle. This is very different from the approach of purely 'mechanistic' theories (based frequently on such fallacious a priori assumptions as a constant degree of long run utilization of equipment), but seems to me much closer to the realities of the process of development. Kalecki 1968 p. 450

Kalecki directly commented on Harrod in his "Observations on the theory of growth" published in 1962. Kalecki criticised what he saw as Harrod's conclusion that his model demonstrated a positive growth trend, with the instability manifesting as cycles around that trend. According to Kalecki, the model in fact demonstrated a stationary trend, with no endogenous forces for growth.

> "For the cyclical nature of capitalist reproduction was for Kalecki undebatable, and resulted from the very essence of the capitalist mode of production. While the watershed between the neo-neo-classical theories of growth and Harrod's theory was whether the capitalist economy could or could not develop altogether without cyclical fluctuations, the major difference between Harrod's and Kalecki's theories was whether – in the absence of exogenous factors – cyclical fluctuations took place around a trend line, or around a static position. Osiatynski (1991) p. 598

In other words, Kalecki argues that Harrods's model was an essentially disequilibrium model of "cyclical fluctuations around a trend line." (Kalecki (1962) p. 411). Where he takes issue with Harrod is with the trend. For Kalecki, capitalist economies "cannot break the impasse of fluctuations around a static position unless economic growth is generated by the impact of semi-exogenous factors such as the effects of innovation upon investment." (Kalecki (1962) p. 411

For Kalecki, then dynamic analysis of capitalist economies was essentially disequilibrium analysis of business cycles. The trend emerged as a result of the path of the cycle. As a result, Kalecki dismissed the notion of equilibrium growth as being operationally insignificant. In addition, he saw strong stagnationist tendencies in capitalist economies, which meant that the trend would be around a static position, unless exogenous and semi-exogenous forces, such as innovation, were to play a role

Conclusion

Harrod thought that the interaction of the multiplier and accelerator could produce economic growth and Kalecki had a more Schumpeterian theory of growth. However, they both focussed on disequilibrium situations. Even Harrod (1939) with its well known emphasis on fundamental growth equations was written as an elaboration which made more precise and accurate ideas in his earlier work on the business cycle. While Harrod thought growth could be discussed without reference to the cycle this was only possible at the highest level of abstraction and any complete theory must combine both.

Kalecki consistently argued that the growth rate of the economy is path determined so that looking at "mechanistic" equilibrium rates of growth is misleading. It is ironic that Harrod's determination to emphasis the difference between his definition of dynamic economics from that of Samuelson and Frisch led him to emphasise his simplifying assumption that the analysis was about what was happening at a moment in time. His emphasis on dynamic economics being about rates of growth dominated latter growth theory but contributed to the view that his theory was solely about the determinants and stability of an equilibrium rate of growth contributing to growth theory loosing its way in the blind alley deplored by both Harrod and Kalecki.[13]

References

Allen, R. D. G. (1959) *Mathematical Economics*, Macmillan, London.

Baumol, W. (1948) "Notes on Some Dynamic Models," *Economic Journal*, December, pp.506-521.

Besomi, D. (1996a) "Introduction to 'An Essay in Dynamic Theory': 1938 Draft by Roy F. Harrod", *History of Political Economy*, pp.245-251.

Besomi, D. (1996b) "An Additional Note on the Harrod-Keynes Correspondence", *History of Political Economy*, pp.281-294.

Besomi, D. (1998) "Failing to Win Consent: Harrod's Dynamics in the Eyes of his Readers" in Rampa, Stella and Thirlwall (eds), *Economic Dynamics, Trade and Growth: Essays on Harrodian Themes*, Macmillan, Basingstoke.

Hahn F, and Matthews R. (1964) "The Theory of Economic Growth: A Survey" *Economic Journal*,

Hamberg D. (1956) *Economic Growth and Instability*, Norton, New York.

---

[13] A paper focussing on this common emphasis on disequilibrium situations is clearly appropriate at a history of economic thought conference, but the "message" of the paper is relevant to the present as well as to history. As Kalecki so clearly perceived the alternative approach to economic growth theory, which became dominant, has had, and still is having, harmful effects on economic policy in Australia and many other countries. Solow (2000) makes this clear stating that the full capacity utilisation of capital (and usually full employment of labour) is just assumed and that this assumption "could better be made explicit by introducing a government that makes (useless) expenditure and levies (lump-sum) taxes in order to preserve full utilization" (p 350), but in the very next paragraph admits that cyclical movements in the rate of investment "will necessarily affect the path of potential output" (ibid).

Harrod, R.F. (1936), *The Trade Cycle: An Essay*, reprinted by Augustus M Kelly, New York, 1965

Harrod, R.F. (1938a) "Scope and Method of Economics*"*, *Economic Journal*, September pp.383-412.

Harrod, R.F. (1938b) " 'An Essay in Dynamic Theory: 1938 Draft' ", *History of Political Economy*, pp.253-280.

Harrod, R.F. (1939) "An Essay in Dynamic Theory", *Economic Journal*, IL, March, pp.14-33.

Harrod, R.F. (1948) *Towards a Dynamic Economics*, Macmillan, London.

Harrod, R.F. (1951) "Notes on Trade Cycle Theory", *Economic Journal*, LXI, June, pp.261-275.

Hicks J,R. (1950) *A Contribution to the Theory of the Trade Cycle*, Oxford University Press.

Kalecki, M. (1962) "Observations on the theory of growth" Economic Journal Vol. 72 pp. 134-153 reprinted in Osiatynski (1991) pp. 411-434

Kalecki, M. (1968) "Trend and the business cycle" Economic Journal Vol. 78 pp. 263-276 reprinted in Osiatynski (1991) pp. 435-450

Kalecki, M. (1970) "Theories of Growth in Different Social Systems" *Scientia* No.5-6, pp.311-316 reprinted in Osiatynski (1993) pp. 109-117

Nevile J.W. (1962) "The Mathematical Formulation of Harrod's Growth Model", *Economic Journal*, June, pp.367-370

Nevile J.W. (2003), "Expectations, Lags and Particular Parameter Values in Harrod's Dynamics", History of Economics Review.

Nevile J.W. and Kriesler P. (2005) "Dynamic Keynesian Economics: Cycling Forward with Harrod and Kalecki" in Freedman and O'Donnell (eds), *Does Economics Have a Useful Past*, History of Economic of Thought Society of Australia.

Osiatynski, J. (ed) (1991) *Collected Works of Michal Kalecki: Volume II: Capitalism: Economic Dynamics* [Clarendon Press: Oxford]

Osiatynski, J. (ed) (1993) *Collected Works of Michal Kalecki: Volume IV: Socialism, Economic Growth and the Efficiency of Investment* [Clarendon Press: Oxford]

Samuelson P. (1939) "Interactions Between the Multiplier Analysis and the Principle of Acceleration", *Review of Economic Statistics*, May pp.75-78.

Solow R.M. (2000) "The Neoclassical Theory of Growth and Distribution*", Banca Nazionale del Lavoro Quarterly Review*, December, pp.349-381.