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THE NEO-RICARDIAN KEYNESIANS

AND THE POST KEYNESIANS

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I. Introduction

I.1. What is the central element of the so called 'Keynesian Revolution'? Perhaps the vast majority of economists would answer this question by saying that there was never really a Keynesian Revolution. These economists would argue that Keynes, in the General Theory, provided a special case of the neoclassical model in which money wages are rigid. Unemployment only results from the fact that the money wage rate is too high in relation to the price level and, therefore, firms are unable to employ all the workers willing to work at the prevailing real wage.

II.2. Not all economists, however, will give this answer. Two relatively small groups of non-mainstream Keynesians (or, to use Joan Robinson's term, non-bastard Keynesians) would deny that the cause of unemployment is the fact that wages are rigid. Post-Keynesians would point out to the role of uncertainty surrounding any act of decision making. In a world of uncertainty money plays a major role in protecting agents against the effects of the irreversability of time. When uncertainty increases agents prefer to hold liquid assets (money being a liquid asset par excellence). If agents are able to hold money rather than use their income to buy goods, there is a permanent threat that the income-expenditure circuit will be interrupted, thus causing unemployment.

Another group, the neo-Ricardian Keynesians, would argue that in a model with many commodities the rate of interest may not perform the role of equilibrating variable between saving

and investment. That is why the neoclassical theory of employment was flawed. Keynes's multiplier mechanism provides a consistent theory of the adjustment of saving and investment, and the level of output. According to this mechanism, saving adjusts to investment through changes in the levels of output and employment. The level of employment determined by the equilibrium between saving and investment will correspond to full employment only by coincidence.

Thus whereas one group emphasizes the role of uncertainty and money as the major causes of unemployment and instability, the other emphasizes the multiplier mechanism as the central element of Keynes's analysis. The main objective of this paper is to assess the ideas of these two schools of Keynesian economic thought, to compare them, and to ascertain to what extent they are truly in contradiction to each other.

I.3. The paper is organized as follows. Sections II and III analyses the central elements of the neo-Ricardian and post-Keynesian contributions, respectively. Part IV compares the two sets of ideas. Part V concludes.

II. The Neo-Ricardian Keynesians

II.1. A group of 'Cambridge economists', with Garegnani, Eatwell and Milgate as its most notable members, has been working on a research program which has Keynes and Sraffa as its primary intellectual source. It has put forward an interpretation of Keynes's General Theory based on the classical 'long period method', and has been studying the adequacy of Sraffa's prices of

production system as an alternative theory of value to Keynes's usage of the marginalist theory. The motivation for such a study is twofold: first, to provide Keynes's principle of effective demand with a consistent theory of value; second, to provide a criticism of the marginalist theory of output and employment based, as it is, on the equalization of saving and investment through changes in the rate of interest.¹

This approach to the economics of Keynes retains the central features of classical political economy, in particular, the separation of the theories of distribution and relative prices on the one hand, and on the other, output, employment, and accumulation. In what follows we shall assess some of the propositions of this approach to which we shall refer as neo-Ricardian Keynesianism.

II.2. The neo-Ricardian approach is centered on the notion of long-period (or equilibrium) positions of the economic system,² that is, positions towards or around which the relevant variables gravitate. Before discussing the specific neo-Ricardian characterization of equilibrium positions, it will be useful to consider an abstract notion of the term and its relationship to the Marshallian usage of the terms short and long periods. Consider a system composed of a set of data (parameters and exogenous variables), a set of endogenously determined variables, and a set of functional relations between the variables of the system. To any change in the data, there will correspond a new configuration of the endogenous variables. An equilibrium simply describes this final configuration towards which or around which

the system gravitates. Equilibrium refers to a position of systemic rest associated with a given set of exogenous variables and the parameters specifying the (expectational, behavioural and technological) functional relations of the system. According to this notion of the term, disequilibrium positions are associated with the transitory path between two positions of rest; they are, so to speak, unstable positions.

We may refer to the data cum functional relations which characterizes the system as the 'core' of the system.³ Feedback effects from the endogenous variables to the data and between the elements of the data may occur but they are not considered explicitly since this would essentially imply the redefinition of the equilibrium. The decision as to which are the exogenous and endogenous variables depends very much on the specific purpose of the analysis. Accordingly, the relevant variables for the characterization of the equilibrium position will depend on the choice of the determined and determinant variables.⁴ There are different reasons why a variable should be part of the data rather than an endogenous variable. The three main reasons are the following. First, the variable in question may depend more on factors alien to the system than on the dynamics of the system. Second, the variable in question may maintain multiple and highly unsystematic functional relations with one or more of the variables of the system thus weakening the definiteness of the results.⁵ The third reason is associated with the span of historical time underlying the analysis: chronological considerations resulting from the purpose of the analysis influences the logical structure of of

the system. Analyses associated with a short time horizon generally will have a greater number of 'givens' than analyses in which the underlying time span is longer. The longer the period the greater the flexibility of the system and, therefore, in principle, the greater the number of endogenous variables. These considerations lead us to Marshall's notions of short and long periods.

II.3. Marshall (1890) made use of the terms short and long periods in a very specific fashion. In the short periods, writes Marshall, "[t]he supply of specialized skill and ability, of suitable machinery and other material capital, and of the appropriate industrial organization has not time to be fully adapted to demand ... In long periods on the other hand all investments of capital and effort in providing the material plant and organization of a business ... have time to be adjusted to the incomes which are expected to be earned by them ..." (Marshall, 1890, p. 313). Thus the short period may be characterized by a given size and composition of the productive capacity; only the utilization of capacity and the employment of the variable inputs adjust to demand. In the long period both the sectoral structure and size of the stock of capital (capacity itself) adjust to changes in demand.

A combination of the notions of equilibrium and disequilibrium, and the Marshallian specific usage of the terms short and long periods provides the following table:

Positions	disequilibrium	equilibrium
Marshallian notions of		
short period	adjustment variables: employment and utilization	final configuration of employment and utilization
long period	adjustment variables: structure and size of capacity	final configuration of the structure and size of capacity (normal capacity utilization)

In the Marshallian short period, disequilibrium positions are associated with the adjustment of capacity utilization and employment. The equilibrium position, in turn, corresponds to the final configuration of employment and utilization. Once capacity itself starts adjusting to demand (the Marshallian long period) the analysis is supposed to discuss the process according to which the stock of capital changes (across a series of disequilibrium positions) and the determination of the final configuration of the sectoral structure and size of the stock of capital. In equilibrium firms are assumed to operate at the normal or expected degree of utilization.

II.4. It should be noted that Keynes, en route to the General Theory, considered three alternative notions of equilibrium positions (long-period positions in Keynes's terminology) -- not mutually exclusive -- which are quite in accordance with what has been discussed above. He writes that:

there are three suggestions conveyed by the term [long-period], which are differently dominant on 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 the 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 (JMK, XXIX, p. 54).

The first two suggestions are quite in accordance with the notion of equilibrium positions presented in paragraph II.2. The third one refers to the adjustment of the structure of production to the conditions of demand, and, therefore, maintains close relation with Marshall's dichotomy. Keynes does not differentiate, however, between the Marshallian short and long periods. It is significant that in relation to the third suggestion Keynes notes that "there is no reason to suppose that positions of long-period equilibrium have an inherent tendency or likelihood to be positions of optimum output" (JMK, XXIX, p. 55). This could be interpreted as meaning that in neither instances of the equilibrium position (long or short) capacity utilization necessarily matches the normal or expected degree.

II.5 We may now turn to the neo-Ricardian characterization of the equilibrium (or, in the neo-Ricardian terminology, long period) position. According to this approach "[a] capitalist economy is said to exhibit long-period characteristics (to be 'in' a long-period position) if, when the price of each commodity is uniform throughout the system, a general (uniform) rate of profit on the supply-price of capital associated with the dominant ... technique obtains" (Milgate, 1982, p.12). Furthermore, "the

uniformity of the rate of profit (...) requires that the scale and composition of output and the size and composition of capacity are adjusted one to the other" (Eatwell, 1983, p. 271). It is obvious from the second condition that the equilibrium position corresponds to the usage of the term associated with the Marshallian long period since the size and structure of capacity are supposed to be compatible with the scale and composition of output or demand. Therefore, this characterization is not consistent with situations in which capacity does not correspond to its normal level as suggested by Keynes in the passage quoted above.

The mechanism through which the system gravitates around (or converges toward) the equilibrium position as characterized by a uniform rate of profit is the "operation of free competition in a capitalist economy [which] induces capitalists to seek the most profitable employment of their stock" (Milgate, 1982, p. 24). The notion of gravitation around the equilibrium position implies that the latter corresponds to a steady state around which the economy actually oscillates. Deviations of market prices (and actual output for that matter) from the normal prices and output levels may result from temporary (non persistent) phenomena such as expectational errors (see paragraph II.7 below). The averaging out over time of these deviations which are associated with "incongruities between existing plant and demand for products", i.e., deviations from the normal level of capacity utilization, "is one and the same thing as gravitation around a uniform, 'normal' rate of profits calculated on the supply price of the

means of production (Garegnani, 1979b, p. 76).⁶

II.6. In section II.2 reference was made to the notion of 'core' of a system by which we meant the set of data and endogenous variables and the set of functional relations between those same variables. The core of the neo-Ricardian system is composed of three data variables -- the wage rate (or the uniform rate of profit), the methods of production, and the size and composition of output. The endogenous variables are the relative prices and the rate of profit (or wage rate measured in terms of the price of one of the reproducible commodities). The functional relations are a set of price equations according to which prices are determined by the costs of production and the rate of profit on capital advanced.

Feedback effects can be studied, and indeed, "the treatement of the real wage, the social product and the technical conditions of production as independent variables in the 'core' in no way entail[s] denying the existence of influences of any single one of these three sets of variables over the remaining two" (Garegnani, 1984, p.296). The reason for treating them as independent variables is that the multiplicity of influences of, say, a change in the real wage on the level of output, the methods of production, and relative prices may render the results of the analysis much less definite.

These interactive effects between data variables and endogenous variables must be considered, however, if and when closures are appended to the classical or neo-Ricardian system. One such closure would be Keynes's theory of output as proposed

by the neo-Ricardians themselves. Potential effects to be considered would be the influence of distribution on aggregate demand and output, the influence of changes in the scale of output on the methods of production and, therefore, on the prices of production. Neo-Ricardians have been quite timid in exploring alternative closures, and have for that reason been accused of taking too many things as 'givens' -- see Hahn (1982).

II.7. The notion of equilibrium position plays a central role in the neo-Ricardian approach to the economics of Keynes. Some critics of the approach -- most notably Joan Robinson and the Post Keynesians -- have pointed out to a certain discrepancy between the notion of equilibrium and the role of expectations and uncertainty. Joan Robinson's view is that "[a]s soon as the uncertainty of the expectations that guide economic behaviour is admitted, equilibrium drops out of the argument and history takes its place" (1974, p.48). As for the specific role of expectations in equilibrium analysis she argues that "long-period balance could be continuously maintained only on a steady growth path where confident expectations about the future can be maintained, continuously fulfilled and so renewed" (1978, p. 214). Therefore the existence of uncertainty and expectations threatens the relevance of equilibrium analysis, and, in particular, comparative statics analysis which omits the role of expectations whenever the system deviates from the equilibrium position.

We submit, however, that the notions of equilibrium and disequilibrium (and steady state path) discussed in the previous paragraphs are powerful instruments of analysis. Given alternative

assumptions about what are the data variables and the endogenous variables, and the functional relations between them, the equilibrium method has the quite desirable characteristic of providing definite results. Furthermore, the method is not entirely incompatible with disequilibrium analysis which may arise, inter alia, from expectational errors. The notion of equilibrium is only the first step to understanding the systematic relations between a set of variables. Institutional factors and the caveats resulting from the irreversability of time may then be introduced as factors affecting the determination of the data variables and the parameters of the functional relations to make the results more relevant.

The neo-Ricardian position concerning the role of expectations is not that they should not be taken into account, but that they ought not be given such a disturbing role as to render the analysis devoid of any definite result (see Garegnani, 1976, p. 140). Expectations should instead play the role of the 'accidental (non-persistent) forces' which make the actual path of the system (associated with the 'market prices' and actual utilization of capacity) deviate from the normal position.⁷

From this we can conclude that expectations are supposed to be satisfied in equilibrium through the 'averaging out process' of deviations from the norm, that is, expectations cannot be persistently falsified. This, it should be noted, is quite a conventional assumption (if not result) in Marshallian long period analysis.

II.8. In face of this discussion where does Keynes's General

Theory lie in terms of methods of analysis? There seems to be no doubt that, unlike the Treatise in which Keynes concentrates on deviations from a norm, the objective of the General Theory is to argue for the possibility of a norm characterized by involuntary unemployment. Neo-Ricardians have correctly pointed out the equilibrium nature of the General Theory's analysis.⁸

There is no fundamental difference amongst most Keynesians about the equilibrium nature of the General Theory's analysis.⁹ The disagreement starts with the neo-Ricardian claim that the General Theory is cast in a 'long-period' analysis. What does this mean? Does it mean equilibrium analysis or does 'long-period' analysis mean something more than this? According to Joan Robinson, "[t]he General Theory is set in a strictly 'short period' situation... Keynes hardly ever peered over the edge of the short period to see the effect of investment in making addition to the stock of productive equipment" (1978, pp. 211-12). Garegnani, himself a prominent neo-Ricardian, argues that "it should be clear that Keynes is concerned with a short period analysis of aggregate output (the determination of capacity utilization) and that a long-period analysis of aggregate output, i.e, an analysis of the reciprocal adaptation of aggregate supply and aggregate demand is one and the same thing as a theory of accumulation. This is absent in Keynes ..." (Eatwell and Milgate, preface). From the point of view of the (non-)adjustment of the size of capacity to the scale of output there seems to be no doubt that the General Theory refers to the Marshallian short period.

Eatwell and Milgate, however, disagree with the idea that

Keynes's General Theory should be identified with the Marshallian short period. The notion that the size of the capital stock is not adequate to the size of output is not contended. What is challenged is the interpretation of the Marshallian taxonomy of periods based on this criterion. In Milgate's words, "[t]he relevant property of a Marshallian short-period ... is not that the stock of equipment is inadequate in 'quantity' but rather that its physical composition has not yet assumed a 'form' compatible with long-period conditions in the sense that it will yield a uniform return on its supply-price" (1982, p. 89). The idea is that unemployment in the General Theory is not due to the 'wrong' composition of the stock of capital -- "the relevant property of a Marshallian short-period" -- but only to the 'wrong' size of the stock. Therefore, the General Theory is not only cast in the equilibrium method but should also be identified with the Marshallian long period. From our perspective there can be no quarrel as to the possible compatibility between unemployment and idle capacity on the one hand, and the 'right' composition of capital on the other hand. We would submit, however, that only by coincidence the composition of the stock of capital would be compatible with the composition of demand after a change in autonomous demand, and the multiplier process had come to an end. In any case, the real problem seems to be the assertion that composition is the only relevant criterion for the Marshallian conception of the long-period. According to this conception, not only should the composition be right but the scale of output and the size of capacity must be adjusted -- see

paragraphs II.3 above. If the latter does not obtain, there may be uniformity of the rate of profit across sectors but such a rate will not correspond to the normal level of capacity utilization.

II.9. We may now consider the neo-Ricardian contribution to economic theory as such. The careful reconstruction of the classical system by Sraffa (1960) -- from which the neo-Ricardian approach to the economics of Keynes was developed -- has the great merit of revealing the problems associated with the marginalist theory of value and distribution based on aggregate production functions. It can be shown that in a system with more than one reproducible commodity the value of any given vector of physical quantities is not independent from the distribution of income between wages and profits. As a result, it can also be shown that the value of any given physical stock of capital does not maintain a monotonic (inverse) relation with the rate of profit as contended by the marginalist theory. (See Pasinetti (1977) for a careful treatment of this point.)

Neo-Ricardians have extended these results to a critique of the marginalist theory of output and employment. In their view Keynes's analysis in the General Theory retained some orthodox or marginalist elements which, on the one hand, did not allow him to develop a negative critique of the orthodox theory (in the sense of showing its inconsistencies), and on the other hand, left open the road for a return of the marginalist theory now incorporating some of Keynes's positive contributions.

II.10. The neo-Keynesian critique of the marginalist theory of

output and employment is due essentially to Garegnani (1978-9, 1983). In what follows we shall reproduce his arguments, and afterwards present some critical considerations.

The non-monotonicity of the relationship between the rate of profit (or interest) and the value of a given stock of capital is an outcome of the Sraffian general equilibrium system. Let the stock of capital be compatible with the full employment of labor, that is, let the stock of capital be given by AX_f where A is the matrix of technical coefficients and X_f is a vector of output corresponding to the full employment of labor. Curve $D(N_f)$ in Figure 1 corresponds to the value of such stock of capital, i.e., $K = p'AX_f$ where p' is the (row) vector of Sraffa's prices of production.¹⁰ This curve can be seen as the demand schedule for capital or, as Garegnani refers to it, the 'capital-employment curve'. For sake of simplicity assume that there is only circular capital which implies that there is no difference between the investment demand and the demand for capital schedules.¹¹

Let the supply of capital or loanable funds depend positively on the level of output and the rate of interest (r). Also, let the saving function correspond to the full employment of labor, $S(N_f)$. Two alternative combinations of investment demand and supply of capital functions are depicted in Figures 1 and 2.

FIGURE 1

FIGURE 2

In Figure 1 equilibrium cum full employment of labor exists

but it is obviously unstable. A marginal deviation from equilibrium would lead the system to one of the extremes of the distribution spectrum. Garegnani (1983, p. 73) observes that if the capital employment curve was to be like the one depicted in Fig. 1 "it would be unreasonable to describe them as 'demand curves', and reasonable to look elsewhere for the explanation of the division of the product between wages and profits". In Fig. 2 equilibrium does not exist; this simply means that, if this was an empirically observed fact, the marginalist argument about a tendency to full employment through the equalization of the investment and saving schedules would be inconsistent.¹²

II.11. For the sake of the argument, let us put aside temporarily the implications of the capital controversy for the shape of the capital demand curve. Assume -- as Keynes does in the General Theory -- that the schedule (labeled K_d in Figures 3 and 4) is downward sloping given the inverse relation between the demand price of capital and the rate of interest. Remember that according to Keynes's construction the level of output is not taken as given in the derivation of the capital demand curve; in fact, the levels of output and employment maintain a direct relation with the equilibrium level of investment (or stock of capital given our assumption about the circulating nature of capital). These assumptions imply that a full employment equilibrium may be attained through the equalization of the capital demand schedule and the saving curve associated with the full employment level of output. Such equilibrium exists and is stable: it may be represented by point A in Figure 3. However,

if, for some reason, the actual or market rate of interest is persistently above the rate corresponding to the full employment equilibrium, such position will never be attained.

FIGURE 3

FIGURE 4

It is a well known fact that both in the Treatise and the General Theory the actual rate of interest does not depend only on saving and investment decisions. It depends on the state of liquidity preference of the economy or, what is the same, on the decisions of the various agents as to how to allocate their stock of wealth. The demand for funds to be invested and the supply of funds that have been saved play only a marginal role on the conditions of liquidity of the economy. They are decisions about the allocation of flows which may only affect the decisions about the allocation of stocks very marginally. In the General Theory the rate of interest is assumed to be only relatively dependent on the demand and supply of current funds; it depends essentially on the demand for and supply of money or, more generally, liquid assets. The interest rate thus determined can be represented by the line LL in Figure 4. The existence of such line would preclude the system from attaining the full employment equilibrium. Enter Keynes's principle of effective demand: in equilibrium, the flow of saving must correspond to the current level of investment which is, in turn, determined by the equalization of the marginal efficiency of capital and the market rate of interest. As Keynes argued, "it is not the rate of interest, but the levels of income which ensures equality between saving and investment" (JMK, VII, p.211).

In Figure 4 a new saving schedule, $S(N^*)$, and a new liquidity preference curve $L'L'$, both corresponding to a level of income smaller than the level compatible with full employment, intersects the investment schedule (Point B). Equilibrium exists and is stable but it does not correspond to the full employment of labor.

II.12. From the neo-Ricardian point of view the above explanation for the possibility of equilibrium cum unemployment provides only a partial critique of the marginalist approach. The principle of effective demand is an alternative to the marginalist theory of output and employment. But the liquidity theory of the rate of interest leaves too much to be desired. Neo-Ricardians argue that Keynes's theory of interest left open a door for the marginalist resurgence. Falling money wages, through its effect on the price level and, therefore, on the liquidity of the system, or an expansion of the money supply, can always make the actual rate converge to the rate associated with the full employment of labor. In terms of Figure 4, this means that point B is not a stable position. The principle of effective demand, therefore, is not inconsistent with full employment.

Neo-Ricardians claim to have provided a definite critique of the marginalist theory of distribution and employment by showing the possibility of a non-monotonic relation between the rate of interest and the value of capital. The critique, however, is not free from caveats. One basic problem is that it places too much emphasis on the shape of the investment demand schedule. Yet it is not impossible to have an upward rising demand schedule

compatible with a stable equilibrium associated with the full employment of labor. Figure 5 depicts this case.

FIGURE 5

A second problem is that the neo-Ricardian construction assumes a uniform rate of profit across sectors. We have already referred to the inadequacy of treating Keynes's General Theory in terms of the Marshallian long period. In the short period the composition of the stock of capital will be compatible with the composition of demand only by coincidence; therefore, only by coincidence there will be a uniform rate of profit across sectors of production.

The third problem is that the neo-Ricardian derivation of the capital-employment curve assumes the level and structure of output to be given; it therefore ignores the effects on the level of output of changes in the rate of interest, that is, of changes in the distribution of income. If this effect was taken into account the shape of the capital employment curve would be affected.

A final problem with the neo-Ricardian construction as a critique of marginalist theory is that the capital employment curve is the outcome of the Sraffian general equilibrium system, and, as such, it does not embody any behavioural assumption on the part of the economic agents. The curve simply reflects the value of a given stock of capital associated with different rates of profit. This curve cannot be compared with Keynes marginal efficiency theory of investment demand or any other theory embodying behavioural assumptions for that matter.

Even if we ignore the problems associated with the uniformity of the rate of profits, the givenness of the level of output and lack of behavioural assumptions underlying the derivation of the capital employment curve, and concentrate on the argument about the shape of the schedule, the neo-Ricardians only provide a 'possibility argument'. The possibility that the equilibrium does not exist (Figure 2) or is unstable (Figure 1). In principle the argument can be falsified (Figure 5). It can also be empirically falsified. What if it was? What if the empirically observed general equilibrium relation between the value of capital and the rate of profit yields a demand schedule for capital consistent with a full employment stable equilibrium? Two alternative routes are then possible. One would be to agree with the marginalist argument that the economy will persistently gravitate around full employment.

The second alternative would be to seriously consider Keynes's arguments about the ambiguities associated with changes in money wages and monetary policy. As for the former the points raised in chapter 19 of the General Theory are simply too well known to be repeated here. As for the role of monetary policy, the following passages taken from early drafts of the General Theory are worth considering:

it cannot be held that the position towards which the economic system is tending or the position at which it would be at rest ..., whichever of these tendencies we have in view, is entirely independent of the policy of the monetary authority; whilst, on the other hand, it cannot be maintained that there is a unique policy which, in the long run the monetary authority is bound to pursue. ... On my view, there is no unique long-period position of equilibrium equally valid regardless of the character of the monetary authority. On the contrary there are a number of such positions corresponding to different policies" (JMK, XXIX, p. 55).

The central message of this passage is that monetary policies do influence long-period positions; that is, different rates of interest correspond to different policies. A certain policy may give rise to a long-period rate of interest which not necessarily corresponds to the equalization of saving and investment when these are both compatible with the full employment of labor. This assertion, we submit, should not surprise the neo-Ricardians since Sraffa (1960) himself suggests that the rate of profits could be affected by the monetary rate of interest as determined by Keynes's liquidity preference theory.¹⁴

III. The Post Keynesians

III.1. A number of Keynesian economists have emphasised the historical (as opposed to logical) nature of time, the importance of uncertainty (as opposed to risk), the role of money and monetary institutions, and the inaccessibility of the equilibrium method in the study of economics, both in Keynes's work and for an adequate analysis of real economies. Some of these economists have been referred to by such names as "Post Keynesians", "American post Keynesians", and "Keynesian fundamentalists",¹⁵ while others who are normally associated with other groups have - recently - expressed similar ideas. For the purposes of this paper we shall refer to the entire group as Post Keynesians.

III.2. We start with a brief description of their views on the issues just mentioned.

Concerning time in economics, they treat it as historical time, rather than logical time as in most of neoclassical economic theory.¹⁶ They emphasise that production takes time, that investment gives rise to productive capacity in the future, and that the purchase of assets results in income in the future. For these and other reasons, economic agents have to make decisions at a point in time which have consequences in the future. Since historical time is irreversible, decisions leading to action at one point in time cannot be undone at a later point, so that time cannot be reduced to timelessness, a situation in which everything happens at once.

They give uncertainty a central role in Keynesian economics. Economic agents have to make decisions in an uncertain environment in which uncertainty rather than risk prevails, so that agents could at most have subjective ideas about likely outcomes of their decisions. Neoclassical economics, by treating uncertainty as risk, essentially reduces uncertainty to certainty. In actual economies, individuals could be thought of as using subjective probabilities, but their decisions based on such distributions would depend on the confidence with which they believed them. Many decisions with future consequences - Keynes emphasised mainly those involving investment and asset holding - would be made following conventions, the behaviour of others, and whims rather than actuarial calculations. Decisions would thus depend on a host of influences which would tend to create instability in the economy, which would cause further uncertainty. In the presence of uncertainty individuals could just reduce their purchase of goods (for investment, for example) and reduce

demand; with an increase in uncertainty they may increase their liquidity preference.

They believe that Keynes emphasised the fact that actual economies are monetary economies, rather than barter economies. The issue of money is connected closely to concepts of historical time and uncertainty. The institution of money can be thought of as a response to uncertainty, as a way of postponing the making of actual decisions; without uncertainty there would be no need to hold money except for normal transactions purposes. Money provides an anchor to which the terms of future payments could be fixed to reduce uncertainty. But by reducing uncertainty, money also creates it: the fact that most contracts are denominated in money terms, and the fact that in modern societies money is created by uncontrolled private businesses, could be responsible for this. The existence of money is also at the root of unemployment due to the lack of demand. In the absence of money agents will supply goods only to demand others, so that Say's law will hold. Also, the payment of wages in the form of money means that firms cannot pay workers with the goods they produce, and thus resolve the effective demand problem. Neoclassical theory, by starting its analysis with barter economies, and then introducing money in a manner which was as good as not introducing it, thus misses the whole point of the Keynesian revolution.

Finally, they believe that the analytical concept of equilibrium is not a useful device, and in fact misleading. Equilibrium is a concept that is central to neoclassical theory, but is an inappropriate device to use in actual economies travelling

along historical time and surrounded by pervasive uncertainty. Such economies are inherently unstable, rather than being in, or tending towards, a tranquil state of equilibrium.

Not all post Keynesians have similar ideas about each of these issues and their importance in Keynes's work. Probably all would emphasise historical time and stress the role of uncertainty in Keynes's work. However, the role of monetary factors, and the instability of actual economies (and the role of equilibrium in economic analysis), is emphasised in some more than in others.

III.3. Post Keynesianism in our sense arose almost from the time of the General Theory. Townshend (1937) spelt out the implications of a Keynesian analysis of uncertainty and expectation for neoclassical price theory. There have been many subsequent contributors. In a series of writings, Shackle (1938, for example) has emphasised the nature of uncertainty described by Keynes, and its implications for decision making and the functioning of the economy. In Shackle (1982) he writes unequivocally that "the elemental core of Keynes' conception of economic society is uncertain expectation, and uncertain expectation is wholly incompatible and in conflict with the notion of equilibrium". Joan Robinson has repeatedly emphasised the idea of historical time in Keynes's theory, and has questioned the use of the neoclassical notion of equilibrium and stability analysis in economic theory. The trio of American post Keynesians - Davidson, S. Weintraub and Wells - have focussed on the role of money in the General Theory, and argued that unemployment could

occur only in a monetary economy, and any reasonable macro-economic theory would have to incorporate money in an appropriate manner, something not done in neoclassical theory. Minsky has emphasised the role of the financing of investment, the role of banks, and the liability structure of businesses; his vision of the economy is that of an inherently unstable one. Metzler (1981) has emphasised the role of expectations and money in much the same way as the other post Keynesians, although he differentiates his product from theirs' by asserting - without adequate justification - that the capitalist system is basically stable.¹⁷

Apart from these, whom we would not hesitate to call post Keynesians, similar ideas have been expressed by some who are not primarily post Keynesian. Thus Clower (1967) has emphasised the role of money in causing the effective demand problem. Leijonhuvud (1968) has discussed the implications of price deflation for the supply of money and aggregate demand much in the same way as the post Keynesians. Some general equilibrium theorists, such as Arrow and Hahn (1971) and Hahn (1977) have argued that if money is appropriately incorporated into an Arrow-Debreu type general equilibrium model, there would be problems in showing the existence of equilibrium. Even Hicks (1976), the creator of the IS-LM model, a favourite whipping dog of many post Keynesians for its timelessness, has turned against himself and emphasised the role of time in Keynes's theory. Several mainstream Keynesians have now recognised that wage flexibility may not result in full employment, recognising the importance of historical time and money. Tobin (1975) argued that deflation, through its effect on the real interest rate, could discourage consumption and

investment expenditure, a mechanism which Hahn and Solow (1986) have recently sought to formalise with an overlapping generations model. Weitzman (1982) and Solow (1985) have shown that a lower real wage in an economy characterised by increasing returns to scale and imperfectly competitive firms is associated with a lower level of employment, due to lower aggregate demand. It would be quite fair to infer that these mainstream Keynesians are beginning to accept Post Keynesian views, although they have usually been interested in formalising one or two isolated mechanisms, and without acknowledging the contributions of the Post Keynesians.

III.4. There is no question that Keynes had a lot to say on the issues mentioned above, which have allowed the members of the group to quote extensively from his work. On uncertainty, his approach was developed very early, from the Treatise on Probability.¹⁸ No one reading chapter 12 of the General Theory, or Keynes's 1937 paper responding to some comments on that book¹⁹ can doubt the importance that he placed on uncertainty. There is also no reason to believe that such issues are specific to this chapter and the paper; chapter 5 also discusses the question of short and long period expectations. However, in chapter 11, which discusses the determinants of investment, his treatment is rather Fisherian, and uncertainty and expectations are suppressed. Regarding money, Keynes's initial exposition of the aggregate demand - aggregate supply analysis in chapter 3 does not introduce money explicitly. But he does emphasise the point that one must forsake the classical postulate of the equality of

the real wage to the marginal disutility of work because the wage bargain was made in terms of the money wage rather than the real wage, and it need not be that a fall in the money wage resulting from unemployment would reduce the real wage, which was required for making firms increase their employment of labor. The Post Keynesians who argue that Keynes was primarily concerned with monetary economies, lean heavily on chapter 17, on the essential properties of interest and money, to substantiate their claim.

III.5. We now turn to an appraisal of the key issues emphasised by the post Keynesians, as described in section III.2.

Regarding the question of time, it should be realised that the fact that time actually is historical does not in itself imply that it cannot be reduced to logical time in the way intertemporal neoclassical theory treats it. In the absence of uncertainty (or in the presence of a complete set of futures markets) time and risk can be reduced legitimately into a static general equilibrium system. (Or, even with uncertainty, if decisions are completely reversible, final equilibrium positions can be studied by treating time as being logical.) Thus the force of the claim regarding historical time ultimately boils down to the relevance of the other criticisms.

The arguments regarding uncertainty are extremely persuasive. There is no question that there is much economic decision making which involves future possibilities to which objective probabilities just cannot be assigned. "Experiments" are not repeated under the same conditions to allow actuarial calculations to be made.²⁰ The relevant question, however, is what such

uncertainty implies about the behaviour of economic agents and about the behaviour of the economy. Keynes and the post Keynesians argue that the implications are (1) that investing firms would be affected by uncertainty and not necessarily wish to invest the full employment level of saving and (2) inherent instability (which in turn would of course affect confidence).

Regarding unemployment, the strength of the argument should be obvious. If firms had full knowledge of the future (or risk could be reduced to actuarial calculations), there would be no reason for firms not to invest the entire full employment level of saving in the economy. In the face of uncertainty firms, however, firms may not want to invest the full employment level of saving. However, it can be argued - as some of Keynes's contemporaries did - that although there could be pessimism and reduced investment due to that, full employment output would still be produced since if unemployment existed, wages would fall to induce firms to hire more labour, and if investment fell short of saving the interest rate would fall to bring saving and investment to equality at full employment. Keynes had answers to both questions: a fall in wages would not necessarily increase labour hiring since it could further increase uncertainty in the economy and otherwise reduce aggregate demand; further, since income would fall to bring saving and investment to equality, there would be no reason for the interest rate to decline, and even if the interest rate did decline, it need not affect saving and investment in the necessary directions.²¹

Regarding instability, the argument is that the existence of

uncertainty (as opposed to risk) makes economic agents have at best subjective probability distributions about the unknown outcome of events, and also different degrees of confidence with which they believe such distributions. Small changes in their present environment could drastically change such degrees of confidence, and thus alter behavior substantially, making the economy inherently unstable. This argument may not seem completely persuasive, however, even if we accept the notion of uncertainty. In the presence of such pervasive uncertainty individual agents might find some peace in following the rule of thumb of following a stable behavior when conditions change to a small degree, and only revise their actions for large changes, so that for small changes (which could be quite large in principle) in the external environment the economy would be quite stable. But the argument in favor of instability could continue further. External changes which are quite small (on average) may be large enough for some agents which could alter their behavior, and this could change the environment for others, and cumulatively, created a great deal of uncertainty.²²

There have been some attacks on the instability argument, which appear to us to be quite illegitimate. Coddington (1983) has argued that investment (and asset holding) behavior could exhibit erratic fluctuations if "(1) present conditions change erratically leading to erratically fluctuating beliefs about future circumstance; or (2) beliefs change erratically without corresponding changes in their basis in conditions." He believes that instability of the type the post Keynesians (and Keynes) discuss must have its origins in the second of the two, since if

they were due to the first, they would not truly be autonomous, since the objective circumstances should have counterparts elsewhere in the model. Coddington thus argues that instability must insist on a subjectivist wedge between behaviour and circumstance. But once such subjectivism is introduced, the question arises as to why it should be introduced selectively (in private investment and asset holding behaviour and not in consumption and government expenditure) as done in Keynes and according to Coddington is crucial to Keynes's argument; further, by divorcing behavior from circumstance, the way is opened for "anything goes". First, Coddington is wrong to insist that instability can only be due to changes in behaviour and not in circumstance. As already implicit in the previous paragraph, changes in confidence can be caused by changes in external circumstances. These external circumstances do not have to be variables in the model, since some of them can be implicit parameters of the model, and this follows from the use of a particular type of a dichotomy, something Coddington - in view of his insightful examination of the nature of analytical dichotomies - certainly ought to have understood. There are legitimate reasons for leaving these "circumstances" as parameters: some could be political and truly exogenous to the model; others could be insignificant for the economy but important for some individuals; further, the relationship between these circumstances and behaviour is not stable, but affected by psychological forces which economists - as well as psychologists! - may have little definite understanding. Yet we are entitled to

have some informal understanding of these issues. With no wedge necessarily introduced between behaviour and circumstance, everything does not have to go. The question regarding the selective introduction of uncertainty is a separate one, but is again both unfair and irrelevant. Unfair, because Keynes and the post Keynesians have argued convincingly that investment and asset holding involve decision making which has future profitability considerations far greater than does consumption spending; while instability in government spending could exist, it is not based on the same reasons as those that govern expectations regarding future profitability and inherent in the operation of the private enterprise system. Irrelevant, because all Keynes needs is to introduce uncertainty somewhere. If it is everywhere, the instability in the economy becomes very great (and even the value of the multiplier becomes unstable); the logical demonstration of the existence of instability is not refuted.

Turning to the role of money, the assertions of the post Keynesians are generally valid, but it appears that they argue further than they need to. That money is not adequately considered in general equilibrium theory, and that its incorporation in a proper way would cause enormous problems for it is candidly admitted by at least one of its ablest practitioners, Hahn.

Post Keynesians have often made the claim that in an economy without money there could be no unemployment, so that the essence of the Keynesian revolution is the proper analysis of money. One argument, as noted above, is that otherwise firms would pay workers not in terms of money but in terms of their product, automatically creating a demand for their products. This argu-

ment is not persuasive in a multi-commodity world in which consumer-workers are not specialised in consumption and insist on wage payment in product bundles. Then firms would realise that the offer of employment does not imply the automatic creation of demand for its product and the problem of effective demand would arise. The other argument is that an asset such as money is required to drive a wedge between income and spending: individuals can hold money which can be produced without generating employment. Some writers, such as Drazen (1980), have argued that money is not required to divorce income from current spending: the existence of any non-produced asset will do the same. While this is true for an individual, it is not true in the aggregate, since the purchase of such an asset by one individual would put purchasing power into the sellers' hands, which could be spent on employment generating goods. Thus money seems to be necessary for an overall discrepancy between (full employment) income and spending, which would result in unemployment. However, it is not enough to show that money is necessary for unemployment. It must be shown that in a monetary economy unemployment is possible (sufficiency need not be insisted upon since Keynes did not deny that a monetary economy could sometimes be at full employment).

Suppose instead of spending on goods, individuals want to hold money, which pushes up the price of money and asset demand spills over into other assets, the production of which (and hence employment generation) will be stimulated. Here Davidson (1972, 1980) invokes the second essential property of money - zero

substitutability with other assets - (the first being zero elasticity of output and employment, so that more of it either cannot be produced, or can be produced without increasing employment), which prevents substitution from money to other assets, presumably because of the unique characteristic of liquidity possessed by money. Here we must agree with Friedman (1974) that Davidson "appears to start from the proposition that there does not exist a long run equilibrium position characterised by full employment, and then try to deduce the empirical characteristics of money (and other elements of the economy) from that proposition". This does not show that the existence of something empirical called money implies unemployment; it merely gives a definition of what property money must have if its existence is to result in unemployment. Such a money need not exist. However, by relying on only these two essential properties of money, Davidson is doing himself injustice. The other institutional consequences which he and other post Keynesian discuss - such as uncertainty, contracts in money terms, and the endogeneity of money supply, together with limited substitutability may well be enough to imply unemployment in the economy. We shall show this at a later stage.

Finally, consider the question of equilibrium. We have seen that the position of many post Keynesians is that equilibrium is a tool that shows the economy in a position of tranquility, a state of rest; since the economy is (according to their interpretation) inherently unstable and constantly moving, primarily due to the sudden shifts in the level of investment, reflecting changes in the state of long term expectations (as discussed

above), equilibrium is a device not suitable for a Keynesian analysis of the economy. There are actually two different issues here: first, whether the economy is inherently unstable, and second, whether it is appropriate to use the tool of equilibrium. We have already examined the first question; let us turn to the second.

Even if we believe that the economy is inherently unstable, this does not imply that we must reject equilibrium analysis. In rejecting neoclassical general equilibrium analysis the post Keynesian have had a tendency to throw the baby out with the bathwater. The notion of equilibrium - cleansed of neoclassical influences - simply says that we specify a set of parameters and fix their values, and solve for the equilibrium values of the variables. (See Shapiro (1978) for a contrary view, arguing that a neoclassical view of the economy is inherent in any equilibrium analysis, which we cannot accept). There is no reason to insist that the economy is actually at that equilibrium, but close to it, and having a tendency to go towards it. Even if the economy is always at the equilibrium, the economy is not necessarily in a tranquil state since the parameters held constant in defining the equilibrium can be changing all the time, even according to some laws of motion which can be studied in a more inclusive model. A valid criticism of a particular equilibrium theory (for example the neoclassical one) is that it does not consider the instability of some parameters due to reasons such as uncertainty, but it does not follow that the notion of equilibrium must be jettisoned.²³

The rejection of equilibrium analysis of any type implies the rejection of formal modelling. While there is certainly much room for what Shackle (1984) calls 'rhetorical' work in economics, as opposed to 'axiomatic' work, there is the danger both of internal obscurity and of the breakdown of communication with economists of other varieties. With mainstream neoclassical economics - rightly or wrongly - having made technical formalism part of its methodological morality,²⁴ there is a danger of post Keynesian economics being largely ignored by the economics profession. Solow (1979) in his partial review of alternative approaches to macroeconomic theory passes the following unfavourable judgement:

Some of the post-Keynesians seem to regard...[the] emphasis on dynamics, on the instability or at least non-stability of an unmanaged capitalist economy, as the essence of the doctrine. But I cannot see how to associate this view with the rather violent attacks on the North American style of model-building that usually accompany it. One would think that instability or non-stability would be a likely candidate for model-building. The proper way to do macroeconomics can hardly be all historical context and no analytical structure. Unfortunately the school has provided no systematic description or example of what it conceives to be the right way to do macroeconomic theory. Thus far so-called post-Keynesianism seems to be more a state of mind than a theory.

Keynes, despite drawing only one diagram in the General theory, and despite his footnote (Keynes (1936), pg. 280) stating "those who (rightly) dislike algebra will lose little by omitting the first section of this chapter", does write down a few equations in the General Theory,²⁵ and discusses in modelling language (although verabally) his analysis in several places, most notably in chapter 18. He also proceeds to show how unemployment can exist within the analytical framework of those that he called the classical economists.

III.6. It is not quite fair to say, however, that the post Keynesians have not developed formal models to represent their views on the functioning of the economy and criticisms of alternative models. They have developed, usually in a manner faithful to Keynes's (1936) chapter 3 analysis, the aggregate demand and aggregate supply diagram which plots the level of employment in the horizontal axis and money values (the product of prices and quantities) on the vertical. Several derivations of the model are available,²⁶ and we provide a brief description of a logically consistent representation.²⁷

Assume that firms are perfectly competitive in the sense of producing a homogeneous product as atomistic agents. However, they do not have perfect knowledge regarding the future. They have to make production plans before knowing what price they will receive upon selling it; we assume that they make a point estimate of the price, which reflects their short term expectation. They also have to invest in order to produce in the more distant future, and such decisions are governed by their long term expectations. Assume that given long term expectations, firms plan to invest a given amount in real terms. There are two income classes: workers who receive a fixed money wage and consume all their income, and capitalists who receive profits and consume a fixed amount in real terms.²⁸ The firms are identical so that we can use the device of the representative firm.

In Keynes's 'day', or Marshall's market period, firms have a given expected price and produce to maximise expected profits. The level of employment in the economy is shown by the intersec-

tion of the aggregate supply (Z) curve and the expected proceeds (E) curve in Figure 6. The Z curve, showing the profit maximizing level of the value of output at any level of employment, is given by

$$Z(N) = W F(N) / F'(N) \quad (1)$$

with given W, the money wage, and the E curve, showing the value of output at any given level of employment for a particular expected price, is given by²⁹

$$E(N) = P^e F(N) \quad (2)$$

for a given expected price P^e , where N is the level of employment, and $F(N)$ the production function (given the level of capital). Both curves are obviously upward rising and the Z curve steeper than the E curve. Note that at the point of intersection we have

$$W/P^e = F'(N) \quad (3)$$

which implies profit maximisation at the given expected price. There is no reason, however, why the price expectation will be realised, so that expected proceeds will equal actual proceeds. In the market period, given the output and employment chosen by firms the product price, P, will adjust to clear the market and equate aggregate demand to output. Given our assumptions, and denoting the real level of investment and capitalist consumption by I, the equilibrium is given by

$$F(N) = WN/P + I \quad (4)$$

so that the market period equilibrium price is

$$P = WN/[F(N) - I] \quad (5)$$

We can thus draw the actual proceeds curve A, showing the rela-

tionship between the actual value of output realised by the firm in the market at any level of employment, given by

$$A(N) = WNF(N)/[F(N)-I] \quad (6)$$

Depending on whether the expected price is higher or lower than the actual price, $E(N) >$ or $< A(N)$ at any N .

FIGURE 6

Beyond the 'day' the firm, if its price expectation is not realised, revise its expectation. Assume that if $P^e > P$ the firm revises its P^e down (but not all the way down to P) and conversely for the opposite case. In the short run this will imply a series of shifting market period equilibria with the E curve moving (up if P^e is increased and down if it is reduced). In short run equilibrium, the firm's price expectation must be fulfilled so that it will not wish to change its level of employment, so that the E curve must have shifted to intersect the Z and A curves at their point of intersection. Notice that there is no reason why the short run equilibrium level of employment is at full employment, since it depends on the parameters of the Z and A curves, and in the figure the short run equilibrium level of employment, N_1 , is shown to be less than the full employment level N_f , which can be taken to be given by the level of employment at which the marginal product for labor is equal to the marginal disutility of work. Note also that if there is a fall in the level of the money wage in response to unemployment, the Z and A curves will shift down by the same vertical amount, leaving the short run equilibrium level of employment unchanged, and given (from equations (1) and (6)) by

$$N = G(I) \quad G' > 0 \quad (7)$$

where $G^{-1} = F(N) - NF'(N)$.

The post Keynesians have used models of this type to criticise those who do Keynesian economics with the income-expenditure model (45° diagram model and its successive developments, including the IS-LM), identifying them as 'bastard Keynesians'. Among other things, they argue that (1) the level of output is determined by the interaction of demand (consumption, investment) and supply (technology, wages) and not by demand alone as in the diagonal cross model; (2) the price level is a variable in the short run, and not fixed, as in the IS-LM model or in the claims made by Leijonhuvud (1969); (3) that since the Z and A curves intersect to determine the level of N, the demand for labor depends on the demand for goods and is not given by the marginal product curve, as in the models of the bastard Keynesians; and (4) wage rigidity does not cause unemployment as claimed by bastard Keynesians, since even with money wage reductions in their (the post Keynesian) model, unemployment does not disappear.

While the post Keynesian model presented above is internally consistent and faithful in principle to Keynes's discussion in chapters 3 and 5, it cannot support the weight of all the criticisms made on its basis. It does show, of course, that Keynes did not assume a fixed price level (as in the IS-LM model) and his revolution was not concerned with reversing the speeds of price and quantity adjustment as claimed by Leijonhuvud. If the diagonal cross model is in error in, it is so only in assuming that aggregate demand is independent of changes in monetary

variables (which legitimately allows it to determine the short run equilibrium value of output by considering only the demand side); it does not necessarily assume fixed prices. The demand curve for labor, assuming atomistic competition, cannot involve the demand for goods as an argument; the marginal product curve would still be the demand curve for labor, with firms employing labor upto the point at which the expected real wage equals the marginal product of labor. Finally, the claim that wage flexibility does not restore full employment cannot be adequately sustained in terms of the model. In the neoclassical synthesis achieved by the bastard Keynesians, wage flexibility would restore full employment by the so called Keynes effect in which a fall in the money wage would increase the real supply of money in the economy, reduce the interest rate and increase investment and the level of aggregate demand: what has come to be called the 'Keynes effect'. Others have added the real balance effect (which was not mentioned by Keynes (1936)), by which the increase in the real money supply would directly stimulate spending. These monetary considerations are absent in the post Keynesian model, since the level of investment is assumed to be constant (thus ruling out the Keynes effect) and spending does not depend on real balances (thus ruling out the real balance effect). If, for example investment were to depend on the rate of interest, a fall in W could reduce the interest rate and raise the level of investment. This would imply that a fall in W would make the Z curve shift down more than the A curve, increasing N . (This is also obvious from equation (7), since I rises.) Thus the post Keynesian position cannot be sustained in terms of the model. It

seems that Keynesian unemployment is possible only with money wage rigidity in the face of unemployment, and does not have much to do with historical time, uncertainty, money, or inherent instability.³⁰

III.7. This does not imply that the post Keynesians are wrong: only that the model they usually use does not by itself make their case for them. In fact, their position can be argued forcefully in terms of the model developed by the 'bastard Keynesians' and now proliferating macro textbooks.³¹ This model uses aggregate demand and aggregate supply curves, but measures real output on the horizontal axis and the unit goods price on the vertical.

The usual presentation draws a downward sloping aggregate demand curve, AD in Figure 7. It is downward sloping for a closed economy because of the Keynes effect or the real balance effect. The aggregate supply curve, AS, is upward rising given the money wage: for example, for the economy described in the post Keynesian model, it would be given by

$$P = W/F'(F^{-1}(Y)) \quad (8)$$

The intersection of the AD and AS curve determine the short run equilibrium level of Y , which could well be less than Y_f , which employs the full employment labor force. With unemployment, W falls over time, pushing the AS curve downwards, till the short run equilibrium level of output results in full employment. Unemployment would persist only if the money wage was rigid and prevented the economy from moving down the AD curve to a position of full employment.

FIGURE 7

This analysis implicitly assumes that the AD curve is (i) downward sloping and (ii) does not shift when the AS curve shifts. We now argue that these assumptions can be sustained only by arbitrarily ignoring a variety of factors emphasised by Keynes and/or the post Keynesians. In the discussion we assume that the AD curve, like the AS curve representing equation (8) is drawn for a given money wage.

First, the level of investment may not respond positively to a fall in the interest rate, so that one reason for the downward slope of the AD curve would disappear. For a world with pervasive uncertainty, Keynes emphasised that investment decisions depended largely on expected long term yields on capital assets, and such expectations may not be affected by reductions in interest rates. (Chapter 12, especially page 164.) Rather than being an unrealistic special case (of a general case which assumes that there is a presumption that investment depends on the interest rate), it may be the general case.³²

Second, the real balance effect provides an incomplete picture of changes in the position of asset holders in the economy. Since nominal assets held by them are not just liabilities of monetary authorities (outside money), but more importantly, those of other individuals, firms and banks, a fall in P would redistribute real wealth from debtors to creditors. The effect on real spending would depend on the extent of wealth redistribution and the partial derivatives of real spending with respect to real wealth: if debtors have higher marginal propensities to spend

than creditors, a net reduction in real spending would follow. These arguments have been made by Kalecki (1944), Leijonhufvud (1969), Wells (1979b), Davidson (1985), and Minsky (1982) (who emphasises the debt position of firms). The argument is not made by Keynes (1936), which does not mention the real balance effect, but there is every reason to believe that he agreed with these arguments.³³

Third, the downward sloping AD curve assumes a given nominal supply of money, and therefore ignores the endogeneity of that supply in real economies. For example, when P falls, firms may find it harder to repay their loans from banks; many of them may default. This would result in reductions in bank assets and hence liabilities, resulting in a decline in credit money. The situation could be aggravated by a spurt of bank failures, further reducing the supply of credit money. Even without such dramatic events, banks may recall loans to firms when P begins to fall. These possibilities have been explored in Wells (1979b), Minsky (1982) and Davidson (1982). Keynes (1936) himself seems to be assuming a given supply of money, but this does not imply that he believed this to be the actual state of affairs; moreover in chapter 12 (pg. 158) he comments on the role of banks in affecting investment and in chapter 19 (pg. 266) explicitly mentions this possibility. If the reductions in nominal money supply reduce spending, the level of aggregate demand would fall.³⁴

Fourth, changes in P would also result in redistributions of income, if all incomes in money terms did not change proportionately with P . The effect on aggregate demand would depend on

differences in marginal propensities to spend by different groups. This possibility was noted by Keynes, pg. 262, and developed by post Keynesians, as in Davidson and Smolensky (1964). This could imply that the AD curve may not be downward sloping. Also, when W falls, there would also be shifts in income distribution between workers and other groups, which could reduce aggregate demand if workers had a higher propensity to consume, thereby shifting to the left the AD curve.

Fifth, Keynes argued that a fall in P could set off changes in expectations of inflation, (as also possibly changes in expectations regarding wage changes). Thus a fall in P could lead to a postponement in purchases of goods with the expectation of further falls (and similarly for investment and wages). Of course, if expectations were 'normal', the opposite would be true; the point is that no general claim can be made that a fall in P would result in a greater aggregate demand due to changes in inflationary expectations. The AD curve could thus be upward rising.

Sixth, if W and P fall, and this results in a downward revision of the expected long run rate of interest, there may be no excess supply of money which would reduce the interest rate. The demand for money depends not just on the rate of interest, but also on the expected long run rate of interest (since this would affect expected changes in interest rates, and hence capital gains on non-money assets. If the long term interest rate fell, asset holders would not expect interest rates to rise and thus cause capital gains; they could thus hold the additional

real quantity of money without requiring a fall in the interest rate. The Keynes effect is thus short-circuited.

If, due to the existence of unemployment, W falls, the mere recognition that money wages are flexible and can vary from day to day with changes in the economy and therefore affect the future production costs of every producer, will increase the general level of uncertainty in the economy. This could happen since the money wage was the main element of cost to producers, as argued by Lerner (1952), Davidson (1972), and Wells (1978, 1979b). This greater uncertainty, other things constant, would reduce the level of real investment in the economy, shifting the AD curve to the left. Greater uncertainty would also presumably increase the demand for liquidity in the economy, which could further reduce spending.

It thus follows that the AD curve could be upward rising, as shown in Figure 8. With unemployment for a given W at the intersection of the AD and AS curves, if W fell, even for a given AD, output (and hence employment) would fall. But the AD could also shift to the left, further reducing output and employment. In this situation wage flexibility would increase the problem of unemployment rather than removing it. The level of P and W would fall rapidly.³⁵

FIGURE 8

Under these circumstances it would be socially desirable to stabilise the money wage; the government might then respond by instituting measures, such as minimum wage legislation, which would make W rigid. Individual firms and households would also enter into long term contracts to make prices and wages more

rigid, thereby reducing uncertainty. Thus the AS curve would be frozen due to wage rigidity. But the argument of the 'bastard Keynesians' is now on its head: instead of wage rigidity causing unemployment, unemployment (and the factors that cause it) cause wage rigidity! Greater wage flexibility would increase unemployment rather than reducing it; this would be true if wage rigidity was the result of trade union pressures or any of the other explanations that have recently been produced to explain the observed rigidity of wages.³⁶

Two comments on this analysis may be made. First, what has been said using the aggregate demand and supply curves here could have been said using the Z and A curves of the standard post Keynesian model: wage reductions would push the A curve down more than the Z curve, thereby increasing unemployment if the post Keynesian arguments were true. However, there would be no reason to suppose that the textbook apparatus was fundamentally flawed, and as we have seen, could be suitably modified to represent post Keynesian results.³⁷ Second, this type of formalisation does suggest that the three basic features - historical time, uncertainty and money - play fundamental roles in causing unemployment equilibrium by making the AD curve upward rising and shifting. Uncertainty enters into the first, fifth, sixth and final arguments; monetary factors in the second, third, fourth and final arguments; and the role of historical time everywhere. Further, with unemployment equilibrium, the stage is set for uncertainty to play a role in shifting the AD curve in response to changes in the economic environment by affecting the state of

long run expectations, thereby creating instability. But wage rigidity and long term contracts in money terms also serve to prevent excessive instability and cause the breakdown of capitalism.

III.8. Our analysis suggests that the post Keynesians may well be right in their analysis of the problem of Keynesian unemployment. The question then arises as to why the mainstream Keynesians have turned a deaf ear to their arguments and have held fast to the wage (or wage-price) rigidity view of Keynesians.

We have already mentioned that the generally verbal style of presentation of the post Keynesians does not go well with the methodological morality of mainstream economists, which demands formalism. Students in the major (usually American) universities have not gone to Keynes or to the post Keynesians, but have instead been dazzled by the formalism of fashionable (though not necessarily relevant!) mainstream theorising. The post Keynesians have partly been responsible by generally unnecessarily eschewing formalism. The arguments that Keynes and they make, are less amenable to formalisation than the wage rigidity arguments, as testified by the recent growth of the Clower-Malinvaud type literature.

There could be deeper reasons, however. It could be explained by an attempt by the economics profession to deny the truly revolutionary character of Keynes's theory. Keynes can be made sense of by assuming unemployment due to wage rigidity: unemployment equilibrium can be shown to exist, his multiplier

works, and uncertainty and instability can be introduced. And if wages are in fact rigid, the behaviour of the economy would be very much the same (though with great differences in institutional detail) as the post Keynesian model. But the classical economists before him had realised that wage rigidity could cause unemployment (although they had not completely spelled out its implications for goods markets and aggregate demand). Keynes was well aware of this. He writes that "the classical theory has been accustomed to rest the supposedly self-adjusting character of the economic system on an assumed fluidity of money wages; and, when there is rigidity, to lay on this rigidity the blame of maladjustment". He makes it quite clear that he disagrees with the classical notion that a decline in the money wage would take the economy to full employment by inducing firms to hire more, since this ignored the macroeconomic effects which he analysed in detail. Thus Keynes viewed his theory to be quite revolutionary in not requiring wage rigidity to cause unemployment. The question arises as to why the profession would want to deny this revolutionary character. There may be purely academic reasons such as the desire to maintain the corpus of standard neoclassical theory, which has learnt to incorporate wage-price rigidity (reconstituted reductionism, as Coddington (1983) calls it) without destroying the neoclassical edifice. But it may not be possible to introduce post Keynesian arguments within the general equilibrium system in an adequate manner, and to recognise the importance of these features could imply the abandonment of that apparatus.³⁸ Or it could be ideological. The removal of unemployment in the bastard Keynesian

interpretation seems to require the cutting of wages and the destruction of unions, while in the post Keynesian interpretation such changes would only aggravate unemployment. Thus which view one takes could depend on what position one takes on the question of class struggle. Recent work on wage rigidity, however, shows that it could be the result not just of union pressures, but in the profit maximising interests of the firms (wage depends on productivity), or in the joint interests of workers and firms (implicit contracts theory).

IV. The Neo-Ricardian Keynesians and the Post Keynesians

IV.1. Having examined the analysis of the neo-Ricardian Keynesians and the post Keynesians in turn we are now in a position to examine them in a comparative manner.

IV.2. Since the economists belonging to each group have tried to sharply distinguish their product from those of the other, and in fact have shown open hostility to the work of the other group,³⁹ it seems more natural to start by comparing the main differences in the approach and analysis of the two groups.

Any such comparison would seem to have to take into account the possible dangers of such a venture due to the fact that the two groups supposedly work within two alternative research programmes. This fact could possibly imply that they pose different questions and speak different languages, making any comparison tricky business. The Neo-Ricardian Keynesians clearly belong to a research programme which takes the Sraffian prices of production approach, with its implied dichotomy and the equalisation of

rates of profit concept of equilibrium, as its hard core. The Post Keynesians have also argued that they have their own "paradigm" (see Eichner and Kregel (1975)⁴⁰), and at least one non-Post Keynesian has been willing to recognise the existence of a post Keynesian research programme.⁴¹ While it is possible to list some issues which the group consider important, the hard core of this research programme seems not to have been defined, and we do not believe can be defined.⁴² Consequently, we feel entitled to overlook this problem. Further, in what we are concerned with, both groups seem to be dealing with at least one identical question - the existence of unemployment - and there is no reason to believe that they define unemployment in different ways.

For purposes of comparison, it is convenient to return to the four issues that have been discussed by the Post Keynesians: time, uncertainty, money and equilibrium, and then to compare their explanations of the existence unemployment.

Regarding time, the Neo-Ricardian Keynesians regard it as logical time, and the Post Keynesians insist on historical time. We have already argued that one's attitude to the treatment of time ultimately reduces to one's attitude towards uncertainty and the nature of equilibrium, and so there is no reason to believe that apart from differences arising from these issues, there can be any difference regarding the attitudes to time.

Regarding uncertainty and the formation of expectations, the Post Keynesians have given it a central role in their analysis. Regarding the Neo-Ricardian Keynesians, they do not deny the

existence of uncertainty, and the necessity of taking into consideration the fact that individuals can form expectations about the future.⁴³ What they deny is that expectational issues - which are subjective - have any bearing on long-period equilibrium in their sense - which is determined by objective factors. The former could have a bearing on the study of questions relating to the deviation from long-period equilibrium, but nothing definite could be said about the behaviour of the economy during such deviations, because nothing definite could be said about expectations. Since economists need definite results, they should ignore any position out of long-period equilibrium and thus should not overemphasize the role of uncertainty and expectations.

There seem to be two separate issues that divide the two groups. First, there is the issue as to whether "short period" phenomena which admittedly depend on expectations can be studied in a systematic manner. While the Neo-Ricardian Keynesians deny this, their denial is made on the basis of how they define "systematic", which is defined internally in their research programme, as positions of long period equilibrium in their sense, and also, their analysis is not contradictory with an analysis of such transient phenomena, only that they choose not to do it. The Post Keynesians, in not following the same definition of "systematic", and sometimes going to the extent of saying that economies are inherently unstable and thus should not be described by systematic relations, have taken the step of analysing short period phenomena and hence expectational issues in their analysis. Second, there is the issue as to whether

expectational issues and uncertainty have a bearing on the long period equilibrium position of the Neo-Ricardians, and that by ignoring history (that is, the actual path of the economy) they have a mistaken notion of long period equilibrium.⁴⁴ Logically, the Neo-Ricardian Keynesians cannot be faulted on this ground, since by taking, for instance, output levels as given, they may already have taken into account the role of history in the given levels of output, without denying the effect of history in determining them (in an unspecified and unknown manner). We therefore conclude that there is no necessary contradiction between the two groups in their attitudes towards uncertainty and expectations. One group has merely chosen not to analyse short period phenomena because of its transitory nature, while the other group has decided to take such a step. Whether such a step is forward or backward seems to have no real bearing on the criticisms that each group makes of the other.

Regarding money, the Post Keynesians give it center stage in their analysis, while it finds no place in the Neo-Ricardian Keynesian core. Nevertheless, the Neo-Ricardian Keynesians have realised the need to incorporate money into their analysis to explain certain crucial features of the real world. We have already referred to Sraffa's (1960) comment that monetary factors would determine the distribution of income, through the interest rate, and some working in the Neo-Ricardian tradition have pursued the matter further.⁴⁵ However, the Neo-Ricardian Keynesians have not analysed the implications of having money for the analysis of output and employment, since they have not

examined in a systematic manner the relationship between distribution and output, both considered to be given in their analysis. This does not consist of a denial of the role of money in questions relating to unemployment: at most a claim that nothing "systematic" can be said about such a relationship.

Regarding equilibrium, the Post Keynesians and Neo-Ricardian Keynesians seem to have gone to two extremes. The former have insisted that economics can only be studied in terms of long period equilibrium positions, while the latter have analysed short period behaviour of capitalist economies, and in studying their inherent instability, sometimes denied the applicability of the equilibrium method to economics. The Neo-Ricardian Keynesians are probably right to the extent of arguing that if an equilibrium concept is not employed, nothing definite can be said regarding the economy; we have argued that the Post Keynesians, by denying the notion of equilibrium seem to have gone too close to nihilism, and that their arguments can be couched in terms of equilibrium analysis, as shown in the previous section. But the Neo-Ricardian Keynesians have gone too far to deny any notion of equilibrium other than their own, which fixes the level and composition of output, distribution (wage or profit) and technology, and finds prices which equalise rates of profit. Even if their equilibrium is an useful one to consider, there is no logical reason why some other equilibrium position cannot be studied, which has a different set of exogenous variables. A Post Keynesian notion of equilibrium could thus be thought to be consistent with a larger set of data (since in a shorter time horizon more things could be said to be given, following

Marshall)). And it is possible that in some cases, the Neo-Ricardian dichotomy (with a particular specification of the data set) is not a useful one.⁴⁶ We conclude that regarding their attitudes towards equilibrium, there is a difference separating the two groups, but due to reasons that cannot be sustained. The Post Keynesians need not jettison the notion of equilibrium, and the Neo-Ricardian Keynesians can use their particular characterisation of equilibrium without denying the existence of others.

Finally, there are differences in the arguments that the Neo-Ricardian Keynesians and Post Keynesians provide on the reasons for the existence of unemployment and the flaws in the neoclassical claim of an automatic tendency toward full employment. The Neo-Ricardian Keynesians seem to rely exclusively on the notion of capital heterogeneity which could make investment not be a downward sloping function of the interest rate. Thus, with unemployment, if the money wage fell, and so did the interest rate, the level of investment demand need not rise to take the economy to full employment. Notice that this only denies the necessary operation of the "Keynes effect". The Post Keynesians have provided a richer menu of arguments, relating to uncertainty and expectations, to income distributional shifts, to the role of monetary institutions, to negate the neoclassical argument. Their arguments not only show that investment need not be an inverse function of the interest rate (using expectational arguments), but also that falling money wages may prevent a fall in interest rates (both arguments negating the "Keynes effect"),

and that falling wages and prices could reduce aggregate demand in other ways, offsetting even any possible "real balance effect". However, the point to note here is that there is no inconsistency between the Neo-Ricardian Keynesian and the Post Keynesian arguments.

IV.3. From the foregoing we are led to believe that there seem to be no sustainable contradictions between the Neo-Ricardian Keynesians and the Post Keynesians, only a difference as to the reasons why the economy will not be led to full employment by market forces.⁴⁷ In fact, as we now argue, there are some fundamental similarities between the two groups.

The first is the fundamental similarity in that neither of the two groups are saying that the economy does not achieve full employment due to some imperfections in the workings of the market. Some varieties of Keynesianism do argue that unemployment exists due to wage (and/or price) rigidity, and have led economists and policy makers to believe that the removal of such imperfections would solve the problem of unemployment. The Neo-Ricardian Keynesian argument follows from the fact that capital goods heterogeneity: this is a fact that cannot be removed, except by a government that invents one machine that can do everything and abolish all other kinds of machinery! The Post Keynesian argument shows how wage-price changes will do nothing to cure unemployment. Uncertainty, banks, and the existence of different groups (workers, rentiers, capitalists, firms) with different behaviour patterns, are not market imperfections which can be removed. Thus the removal of restrictions on wages and

prices (by breaking unions or by promoting competition in goods markets) would not deliver the economy from unemployment.

We here object vehemently to the assertion made by some Neo-Ricardian Keynesians (Eatwell and Milgate (1983), Magnani (1983)) that the Post Keynesians are "imperfectionists". If by "perfect" one defines the world portrayed by the neoclassical general equilibrium system which leads to full employment equilibrium, then by definition anyone who argues that the economy can experience unemployment for a "long" period of time (both types of Keynesians were considering fit the bill) is an "imperfectionist". Alternatively, if by "perfect" one defines the textbook neoclassical synthesis model with all its functions having regularly signed partial derivatives with respect to their arguments, and with all prices perfectly flexible, both types of Keynesians turn out to be imperfectionists: the Neo-Ricardian Keynesians, by arguing that the investment schedule is not downward sloping, and the Post Keynesians by denying that the same thing, and by showing that the interest rate need not fall (due to the "perversities" in the demand for money function or the endogeneity of money supply). By calling the Post Keynesians imperfectionists, the Neo-Ricardian Keynesians become imperfectionists, too. Actually, both the definitions of imperfectionist (which roughly amount to the same) imply a neoclassical view of perfectionism, which is a theoretical one, based, as it is, on concepts which are sensible only within a neoclassical research programme. More generally, if we define imperfections as those which interfere with the free forces of the market that can, in principle be removed without destroying the free markets (by

breaking unions and monopolies)⁴⁸ neither of the two groups are imperfectionists.⁴⁹ The NRs may still insist that they have destroyed the neoclassical argument by showing the neoclassical system to be inconsistent. This is a claim that we cannot entertain.⁵⁰

Second, both groups could be interpreted as not only saying that unemployment is not the result of rigidities, but that removal of rigidities (which exist for whatever reasons) could destabilise the economy and increase unemployment. The Post Keynesians argue this point explicitly, as shown in section III. If money wages become perfectly flexible, the economy would be subjected to wide fluctuations, and uncertainty would increase, confounding the problem of unemployment. The Neo-Ricardian Keynesians do not make the point explicitly, but the argument can be distilled from their work. Suppose that the capital employment schedule is upward rising and steeper than the saving schedule (as drawn in Figure 1). Then if there is an excess of saving over investment, the interest rate would fall, increasing the gap. The interest would just not be an adjusting variable, and the level of output and employment would have to fall. But if interest rates change quickly and output takes more time to adjust, the economy would become highly unstable with the interest rate falling without limit. This would not destroy the Neo-Ricardian Keynesian result that unemployment would exist, but make the economy seem more unstable than it actually is. Sraffa's solution was to suggest that the interest rate was made rigid by the monetary authorities. But this is not the cause of

unemployment. Removal of the rigidity of the interest rate would increase uncertainty in the economy, and presumably, unemployment!

IV.4. Our conclusion from this comparison of the analysis of the two types of Keynesians suggests that there is no necessary contradiction between the two groups which can be sustained. The question still remains as to why there have quarelled so much. The reasons, we believe, can be attributed to two factors.

The first has to do with the sociology of science. It may be argued that there exists a natural tendency in minorities to look for their roots, and find ways to establish their identities. Economists are no exception. Marx tried to differentiate his product by calling almost anything written before he started writing 'bourgeois Political Economy'. Keynes similarly gave the name 'classical' economists to a group of economists ranging from Ricardo to Pigou. Radical economists in both the Marxian and Keynesian traditions also try to emphasize the differences between their ideas and those of mainstream economists. In doing this there is a strong tendency to go back to the original text (Marx's Capital or Keynes's General Theory), and to identify (in their opinion) truly Marxian and Keynesian conceptions.

The two varieties of Keynesians we are considering in this paper explore different dimensions of Keynes's General Theory. In a word, the Post Keynesians emphasize the role of money and uncertainty, whereas the Neo-Ricardian Keynesians emphasize the multiplier mechanism, and the role of output as the equilibrating variable between saving and investment. By doing this they

are, in fact, searching for their identities: they are focussing their analyses on what they consider to be the truly innovative or revolutionary elements of Keynes's ideas. One important reason for the existence of two groups of non-mainstream Keynesians is the fact that Keynes himself emphasized the notions of unemployment equilibrium (for which the role of the multiplier is central) and the instability of the system (for which the role of money and uncertainty are fundamental).

The second has to do with ideology. Some of the Post Keynesians have expressed a belief in the workings of the private enterprise system if it could be controlled in specified ways, that is, by control of the banking and financial systems, and with incomes and price policies.⁵¹ Some of these prescriptions have to do with their analysis of the ills of the private enterprise system, as discussed above. Some of the Neo-Ricardian Keynesians, on the other hand, have expressed a more fundamental distrust in the workings of the free market, and this is obviously related to their belief that they have shown the inconsistency of the neoclassical adjustment mechanism. What belief one has in the efficacy of the free market system is based on one's ideology. While ideology could drive one to this camp or that, it should be realised that it does not logically imply the acceptance of a particular type of economic analysis. The Neo-Ricardian Keynesians have not shown that the free market system does not work (or cannot be made to work): at best, they have shown that the neoclassical demonstration is flawed. The Post Keynesians have not shown that the free market system could be suitably modified to make it work: they might suffer from naivete

about political realities and class conflicts, and a consequently mistaken (or overly optimistic) view of the state and its ability or willingness to resolve the problem of unemployment.

V. Conclusion

There seems to be no reason why the Neo-Ricardian Keynesians and the Post Keynesians, while recognising their paradigmatic differences (if they consider them to be important), cannot devote more time and effort to battling orthodoxy than battling themselves. This would imply that the group could become a larger minority, and find strength in numbers.

Such an unity is probably desirable from the tactical point of view. The "enemy" is too strong to take on alone. Also, mainstream economists may get the impression that if the under-dogs spend so much time fighting themselves, they must both be wrong. Further, each group has been able to cast some doubt on the neoclassical claims and argued other possibilities. If the possibilities are added together, they could make more reasonable mainstream economists begin to doubt their doctrines, and give the Neo-Ricardian Keynesians and the Post Keynesian views a fairer trial.

FOOTNOTES

1. Both motivations are justified on the basis of the inconsistencies of the marginalist theories of value, distribution and output based on aggregate production functions. We shall come back to this point.

2. Neo-Ricardians prefer the term 'long period positions' rather than 'equilibrium positions'. The reason for this is that the classical theory of value and distribution (based on which the neo-Ricardian contributions are developed) does not "resort to

the 'opposite forces of supply and demand' which implies that the "word 'equilibrium' does not seem appropriate to describe the position of the economic system characterized 'natural' prices, wages and profits" (Garegnani, 1976, p. 130, n. 2). In the text we shall refer to equilibrium and disequilibrium (rather than long and short) periods; we shall restrict the usage of the terms long and short periods to their Marshallian meaning.

3. See Garegnani (1984, pp. 295-97).

4. See Dutt (1986) and footnote 23 below.

5. From a logical point of view the first and second reasons seem to provide a reasonable justification for considering the money wage parametrically in the General Theory's system. First, there are institutional factors determining the wage which may be stronger than the conditions of supply and demand for labor. Second, the effect of changes in money wages on the endogenous variables (employment and distribution) is highly ambiguous.

6. The fact that the equilibrium position according to the neo-Ricardian approach corresponds to the Marshallian long period is also evident from the following passage by Garegnani: "[l]ong-period theory analyses what will happen over an average of such 'short periods', when, with the possibility of changes in the size of plant, the effects of such incongruities [between the stock of capital and demand] will tend to cancel each other out" (1979b, p. 76, emphasis added).

7. According to Garegnani, "incorrect price expectations entertained in the past might indeed be a way of describing some of the factors that make the market prices deviate from the natural prices" (1976, p. 133).

8. In this respect the General Theory departs from other post-Wicksellian contributions (including Keynes's Treatise) in which short period expectations play quite a central role in determining the path of the system over a series of short-periods. In these analyses the notion of equilibrium position is relegated to a second plan. See Amadeo (1985).

9. Perhaps we should be more careful about this statement. Post-Keynesians would suggest that due to the role of changing long-period expectations the equilibrium would be continuously moving. Keynes himself could argue that the General Theory, rather than based on a stationary equilibrium method is a "theory of shifting equilibrium -- meaning [by this] the theory of a system in which changing views about the future are capable of influencing the the present situation" (JMK, VII, p. 293). Other Keynesians such as Leijohnfvd would argue that "Keynes used the term 'unemployment equilibrium'... [But] ... it is not an equilibrium in the strict sense at all. It is preferable to use some more neutral term which does not carry the connotation that no equilibrating forces at all are at work. The real question is why the forces tending to bring the system back to full employment are so weak"

(1969, p. 22).

10. Let a be the vector of labor:output ratios, then $aX_f = N_f$ where N_f is the level of employment corresponding to full employment. According to this construction, since the physical stock of capital and physical level of output are given, the value of capital only depends on the prices of production.

11. For the case in which there is fixed capital, see Garegnani, (1970).

12. It is interesting to note that Keynes in his critique of the classical theory of interest (chapter 14 of the General Theory) refers to the possibility of the non-existence of equilibrium based on the argument that the saving function may be negatively sloped. He there argues: "it has been agreed ... that it is not certain that the sum saved out of a given income necessarily increases when the rate of interest is increased; whereas no one doubts that investment demand-schedules falls with a rising interest rate. But if the Y-curves [saving schedules] and the X-curves [investment schedules] both falls as the rate of interest rises, there is no guarantee that a given Y-curve will intersect a given X-curve anywhere at all." (p. 182)

13. The elasticity of the saving function with respect to the rate of interest does not alter the following arguments.

14. See Panico (1985) for a discussion of the relation between Keynes's theory of the rate of interest and the long-period rate of profit.

15. The designation Post Keynesian comes from the chief journal associated with this school, the Journal of Post Keynesian Economics. A problem with this name is that another group of economists, writing with a different perspective - that of long period equilibrium in the classical sense - have also been included under the label. To distinguish those that concern us here from this other group, some have used the designation American post Keynesians. This name is inadequate since all those who are part of the group are not Americans. Coddington (1983) has used the term fundamentalists to underline the fact that members of the group try to interpret Keynes's word to the letter, although he agrees with Patinkin that they do so in a selective manner to serve as a vehicle for expounding their own views. There are some other economists who have sometimes been called 'Post-Keynesians' (Tarshis (1980), Harcourt (1985) and Carvalho (1984-85) have used the name in a broader sense to include these others) who have tried to extend Keynes's analysis and make it more realistic by incorporating imperfect competition, and by examining the question of income distribution. Prominent among this group are Kaldor, Eichner and Harcourt. Kalecki has sometimes also been placed in this group, but it would be unfair to call him a post Keynesian. We will not discuss their work here, confining attention to those who have tried to interpret Keynes, and to find the essence of his own

revolution (although the dividing line between the two is admittedly somewhat fuzzy).

16. Joan Robinson (1964) has been the most vocal expositor of these views. See, for a summary of her views, Gram and Walsh (1983). See also Asimakopulos (1978).

17. Others who could also be called Post Keynesians include Asimakopulos, Chick, and Kregel. See especially Chick (1983) for a careful presentation of Post Keynesian ideas, especially a thorough discussion of the role of historical time in Keynes's analysis of production economies.

18. Keynes (1921). For a discussion of Keynes's notions regarding uncertainty and probability, and their relationship to the General Theory, see Cochrane (1971), E. Weintraub (1975), and Stohs (1980).

19. Keynes (1937).

20. Some of the criticisms of this, as in Coddington (1983), pg. 57, seem to overlook the basic distinction between risk and uncertainty.

21. We shall return to these arguments below.

22. An example would be a few large losses affecting a few people (too small to affect average profitability) would shake the confidence of businessmen they are regularly in contact with, reduce their levels of investment, and thereby have a greater effect on aggregate demand, at which point firms more generally could have a loss of confidence and a change in behavior.

23. Any theorising - formal or otherwise - must involve some type of dichotomy, which implies that the theory explains the behavior of some things (variables) and takes as given some other things (parameters) that are not explained within the theory. While stability in time (relative to the things that are being explained) could be one reason for using a dichotomy which makes certain things parameters, it is not the only one. Another one would be to make things parameters which are extremely volatile, and/or the relationship between them and the other variables is not (or cannot) be well understood. See Dutt (1986). This latter point implies that "order" may be a stronger requirement than "determinacy", contrary to what Carvalho (194-85) argues.

24. See Dow (1980).

25. The chapters are 3, 4, 6, 8, 10, 13, 15, 19 (appendix), 20 and 21.

26. See, for example, S. Weintraub (1958), Davidson and Smolensky (1964), Chick (1983), and Casarosa (1981).

27. This follows Dutt (1985). See also Amadeo (1985).

28. Only in one paragraph in chapter 19 (and perhaps a hint in chapter 8) does Keynes distinguish between income classes; many post Keynesians, however, distinguish between classes in their models.

29. Atomistic firms cannot have expectations regarding the quantity of sales.

30. Yellen (1980) has used the reasoning to criticise a slightly different Post Keynesian model. But as the next section shows, her final judgement on the absence of any role of money in the post Keynesian model is completely misplaced.

31. This follows Dutt (1986-87).

32. This argument, denying that investment responds inversely to the interest rate, is the common point between the post Keynesians and neo-Ricardian Keynesians. However, while post Keynesians would argue in terms of uncertainty and long term expectations, the latter would argue it on the basis of the heterogeneity of capital goods, as shown above.

33. See Presley (1986). Keynes seems to have had an important role in Robertson's development of the argument.

34. Note that if this is thought to be due to the interest elasticity of investment and the real balance effect, and our analysis in the two previous paragraphs is correct, it may be thought that no reductions in aggregate demand would occur. However, post Keynesians could try to have it both ways, and with reason, thanks to possible ratchet effects. It could be argued that an increase in the rate of interest could reduce investment and not the other way around; similarly for a fall in real balances.

35. This is strongly reminiscent of Keynes's own discussion of the subject. For example, "...very small fluctuation in the propensity to consume and the inducement to invest would cause money-prices to rush violently between zero and infinity" (pg. 239), and "...prices would be in an unstable equilibrium...racing to zero whenever investment was below [the critical level], and to infinity whenever it was above it..(pgs. 269-70).

36. See, for example, Solow (1979).

37. The argument that the post Keynesian curves can be drawn for an economy with many firms with different expectations and many goods and the AD and AS curve cannot, does not hold water; in both cases arbitrary assumptions are required for aggregation to be exactly justifiable. For the aggregation assumptions in post Keynesian models, see Asimakopulos (1982). In macroeconomic analysis approximating aggregations are made all the time, and that is what gives it its analytical power in the analysis of macroeconomic issues.

38. See E. Weintraub (1975) for a review of the relationship between general equilibrium theory and uncertainty.

39. For the Neo-Ricardian Keynesians writing against the Post Keynesians, see, for example, Eatwell and Milgate (1983) Introduction, and Magnani (1983); for Post Keynesians against the Neo-Ricardian Keynesians, see Asimakopulos (1985).

40. We should hasten to add that Eichner and Kregel define the paradigm more broadly than we have, not excluding the Neo-Ricardian Keynesians, and including those who have extended Keynes's work. See footnote 15.

41. See E. Weintraub (1985).

42. Part of the reason lies in the widely different backgrounds of those who have made contributions to the approach. There is no implication that there is thus a weakness in the Post Keynesian approach. In fact, it could be considered to be a strength, in not shackling them to any particular research program and thereby reducing their creativity.

43. See Kregel (1976) for an interpretation.

44. It is easy to see that if there are irreversibilities in the movement of some variable outside equilibrium, the equilibrium position will depend on the path taken by the economy. Irreversibilities may arise with capital stocks, or with wages (with downward wage rigidity). The final equilibrium may also depend on the path taken by the economy if we make a distinction between expectations regarding things that occur within the period (within period expectations) and expectations regarding things beyond the period (beyond period expectations) (like Keynes's distinction between short period and long period expectations), and assume that values taken by within period expectations can affect beyond period expectations. (See Kregel (1976) for whether Keynes made this assumption or not).

45. See Panico (1980, 1985) and Pivetti (1985) for further analysis.

46. See Dutt (1986).

47. We should repeat that we do not imply that there are no fundamental (in some sense) differences between the two groups. Carvalho (1984-85) stresses these differences, and argues that they are rooted in the "vision" adopted by each group and we would agree with much of his analysis. What we do argue is that both views make positive contributions which, when appropriately interpreted, are not necessarily in contradiction with each other.

48. The force of this argument is reduced somewhat by the fact that someone would argue that such "rigidities" are intrinsic

parts of free markets and by removing them, free markets would ultimately collapse. We still believe that our definition of imperfection serves some purpose.

49. Magnani (1983) seems to misrepresent the Post Keynesians (particularly Davidson) on many particular points. For example, while the Post Keynesians do argue that uncertainty results in wage rigidity, they do not argue that 'wage rigidity causes unemployment. Further, the Post Keynesians are right in their critique of the fixed-price disequilibrium theories, despite Magnani's claim. While in some of their models, a fall in the real wage in response to unemployment would increase unemployment, this happens because of assumed price rigidities (sometime just taken as given, and sometimes argued on the basis of imperfections in competition). If prices and wages were completely flexible in these models, the economies would converge to the Walrasian equilibrium. This is because they overemphasise the real balance effect and leave out of consideration all the factors considered to be important by the Post Keynesians.

50. The neo-Ricardians at best have shown that the convergence to a neoclassical full employment equilibrium may be unstable. But they have also not shown that their own equilibrium with intersectorally equalised profit rates is a stable one. See, for example, Hahn (1982) and Dutt (1986).

51. See Davidson (1972), for example.

REFERENCES

Amadeo, Edward (1985). Keynes's Principle of Effective Demand and its Relationship to Alternative Theories of Distribution and Accumulation, unpublished Ph. D. dissertation, Harvard University.

Arrow, Kenneth J and Frank H. Hahn (1971). General Competitive Analysis, San Francisco: Holden Day.

Asimakopulos, A. (1978). "Keynesian Economics, Equilibrium and Time", Canadian Journal of Economics, 11(4), November.

Asimakopulos, A. (1982). "Keynes' Theory of Effective Demand Revisited", Australian Economic Papers, June.

Asimakopulos, A. (1985). "Keynes and Sraffa: Visions and Perspective", Political Economy, Vol 1 No 2.

Carvalho, Fernando (1984-85). "Alternative analyses of short and long run in Post Keynesian economics", Journal of Post Keynesian Economics, Winter.

Casarsosa, Carlo (1981). "The Microfoundations of Keynes's Aggregate Supply and Expected Demand Analysis", Economic Journal,

91, March.

Chick, Victoria (1983). Macroeconomic After Keynes, Cambridge, Massachusetts: MIT Press.

Clower, Robert (1967). "A Reconsideration of the Microfoundations of Monetary Theory", Western Economic Journal, 6, pp. 1-9.

Cochrane, J. L. (1971). "Keynesian probability and the General Theory", Rivista Internazionale di Scienze Commerciali, Vol 18(4), April.

Coddington, Alan (1983). Keynesian Economics: The Search for First Principles, London: Allen and Unwin.

Davidson, Paul (1972). Money and the Real World, London: Macmillan, New York: Wiley. 2nd ed., 1978.

Davidson, Paul (1980). "The Dual-Faceted Nature of the Keynesian Revolution: Money and Money Wages in Unemployment and Production Flow Prices", Journal of Post Keynesian Economics, 2(3), Spring.

Davidson, Paul (1985). "Liquidity and not increasing returns is the ultimate source of unemployment equilibrium", Journal of Post Keynesian Economics.

Davidson, Paul and Eugene Smolensky (1965). Aggregate Supply and Demand Analysis, New York: Harper and Row.

Dow, Shiela (1980). "Methodological morality in the Cambridge controversies", Journal of Post Keynesian Economics, 2(3), Spring.

Drazen, Alan (1980). "Recent Developments in Macroeconomic Disequilibrium Theory", Econometrica, March.

Dutt, Amitava Krishna (1985). "Keynes with a perfectly competitive goods market", mimeo, Florida International University, October.

Dutt, Amitava Krishna (1986). "The Classical Dichotomy: theory of prices with given output and distribution", mimeo, Florida International University.

Dutt, Amitava Krishna (1986-87). "Wage Rigidity and Unemployment: The Simple Diagrammatics of Two Views", Journal of Post Keynesian Economics, Winter.

Eatwell, John (1983). "The Long Period Theory of Employment", Cambridge Journal of Economics.

Eatwell, John and Murray Milgate (1983). "Introduction", in Eatwell and Milgate (1983).

Eatwell, John and Murray Milgate eds. (1983) Keynes's Economics

and the Theory of Value and Distribution, London: Duckworth, and New York: Oxford University Press.

Eichner, A. S. and J. A. Kregel (1975). "An Essay on Post-Keynesian Theory: a New Paradigm in Economics", Journal of Economic Literature, Vol 13,4, December.

Garegnani, Pierangelo (1976). "On a change in the notion of equilibrium in recent work on value and distribution", in Eatwell and Milgate (1983).

Garegnani, Pierangelo (1978-79). "Notes on consumption, investment and effective demand", Cambridge Journal of Economics, repr. in Eatwell and Milgate (1983).

Garegnani, Pierangelo (1979b). "Reply to Joan Robinson", Cambridge Journal of Economics, repr. in Eatwell and Milgate (1983).

Garegnani, Pierangelo (1983). "Changes and Comparisons: a reply", mimeo, presented in the Joan Robinson memorial, Barnard College, New York.

Garegnani, Pierangelo (1984). "Value and distribution in the Classical Economists and Marx", Oxford Economic Papers.

Gram, Harvey and Vivian Walsh (1983). "Joan Robinson's Economics in Retrospect", Journal of Economic Literature, 21(2), June.

Hahn, Frank (1977). "Keynesian Economics and General Equilibrium Theory: Reflections on Some Current Debates", G. C. Harcourt, ed., Microeconomic Foundations of Macroeconomics, London: Macmillan.

Hahn, Frank (1982). "The neo-Ricardians", Cambridge Journal of Economics.

Hahn, Frank, and Solow, Robert (1986). "Is Wage Flexibility a Good Thing?", in W. Beckerman, ed., Wage Rigidity and Unemployment, Baltimore: The Johns Hopkins University Press.

Harcourt, Geoffrey C. (1985). "Post Keynesianism: Quite Wrong and/or Nothing New?", in P. Arestis and T. Skouras, eds., Post Keynesian Economic Theory, Sussex: Wheatsheaf Books; Armonk, New York: M. E. Sharpe.

Hicks, John R. (1976). "Some Questions of Time in Economics", in A. M. Tang, et al., eds., Evolution, Welfare and Time in Economics, Lexington, Mass.: D. C. Heath and Co.

Kalecki, Michal (1944). "Professor Pigou on 'The Classical Stationary State': a comment", Economic Journal, Vol. 54.

Keynes, John Maynard (1921). Treatise on Probability, London: Macmillan.

Keynes, John Maynard (1936). The General Theory of Employment, Interest and Money, London: Macmillan.

Keynes, John Maynard (1937). "The General Theory of Employment", Quarterly Journal of Economics. Reprinted in Keynes (1973), Vol XIV.

Keynes, John Maynard (1973). The Collected Writings of J. M. Keynes, edited by Donald Moggeridge, London: Macmillan, Vols V, VI, VII, XIII, XIV and XXIX.

Kregel, Jan (1976). "Economic Methodology in the Face of Uncertainty", Economic Journal, 86.

Leijonhufvud, Axel (1968). On Keynesian Economics and the Economics of Keynes, New York: Oxford University Press.

Lerner, Abba P. (1952). "The Essential Properties of Interest and Money", Quarterly Journal of Economics, 46.

Magnani, M. (1983). "'Keynesian Fundamentalism': a critique", in Eatwell and Milgate (1983).

Marshall, Alfred (1980). Principles of Economics, 8th Edition, New York: Macmillan.

Metzler, Alan H. (1981). "Keynes' General Theory: A Different Perspective", Journal of Economic Literature, 19, March.

Milgate, Murray (1982). Capital and Employment, New York and London: Academic Press.

Minsky, Hyman P. (1982). Can "it" Happen Again, Armonk, New York: Sharpe.

Panico, Carlo (1980). "Marx's analysis of the relationship between the rate of interest and the rate of profits", Cambridge Journal of Economics, repr. in Eatwell and Milgate (1983).

Panico, Carlo (1985). "Market forces and the relation between the rates of interest and profits", Contributions to Political Economy, Vol 4, March.

Pasinetti, Luigi (1977). Lectures on the Theory of Production New York: Columbia University Press.

Pivetti, Massimo (1985). "On the Monetary Explanation of Distribution", Political Economy, Vol 1, No. 2.

Presley, John R. (1986). "J. M. Keynes and the Real Balance Effect", The Manchester School, March.

Robinson, Joan (1964). Essays in the Theory of Economic Growth, New York: St. Martin's.

Robinson, Joan (1974). "History versus Equilibrium", Thames Papers in Political Economy, repr. in Collected Economic Papers, Vol V, Cambridge, Mass.: MIT Press, 1980.

Robinson, Joan (1978). "Keynes and Ricardo", Journal of Post Keynesian Economics, repr. in Collected Economic Papers, Vol V, Cambridge, Mass.: MIT Press, 1980.

Shackle, G. L. S. (1938). Expectations, Investment and Income, London: Macmillan.

Shackle, G. L. S. (1967). The Years of High Theory, Cambridge: Cambridge University Press.

Shackle, G. L. S. (1982). "Sir John Hicks' 'IS-LM: an explanation': a comment", Journal of Post Keynesian Economics, 4(3), Spring.

Shackle, G. L. S. (1984). "General Thought-Schemes and the Economist", Thames Papers in Political Economy, Thames Polytechnic, Autumn.

Shapiro, Nina (1978). "Keynes and Equilibrium Economics", Australian Economic Papers, 17, December.

Solow, Robert M. (1979). "Alternative approaches to macroeconomic theory: a partial view", Canadian Journal of Economics, 12(3), August.

Solow, Robert M. (1986). Consequences of Unemployment Equilibrium, forthcoming (tentative title), Oxford: Basil Blackwell.

Stohs, M. (1980). " 'Uncertainty' in Keynes' General Theory", History of Political Economy, 12(3), Autumn.

Tarshis, Lorie (1980). "Post-Keynesian Economics: a Promise that Bounced?", American Economic Review, 70(2), May.

Townshend, Hugh (1937). "Liquidity Premium and the theory of Value", Economic Journal, 47, 1, March.

Weintraub, E. Roy (1975). "Uncertainty and the Keynesian Revolution", History of Political Economy, 7.

Weintraub, E. Roy (1985). General Equilibrium Analysis, Cambridge: Cambridge University Press.

Weintraub, Sidney (1958). An Approach to the theory of Income Distribution, Philadelphia:

Weitzman, Martin (1982). "Increasing returns and the foundations of unemployment theory", Economic Journal, December.

Wells, Paul (1978). "In review of Keynes", Cambridge Journal of

Economics, 2.

Wells, Paul (1979a). "Modigliani on flexible wages and prices",
Journal of Post Keynesian Economics.

Wells, Paul (1979b). "Money and the money wage rate", in M. J.
Boskin, ed., Economics and Human Welfare, New York and London:
Academic Press.

Yellen, J. L. (1980). "On Keynesian Economics and the Economics
of the Post-Keynesians", American Economic Review, 70(2), May.

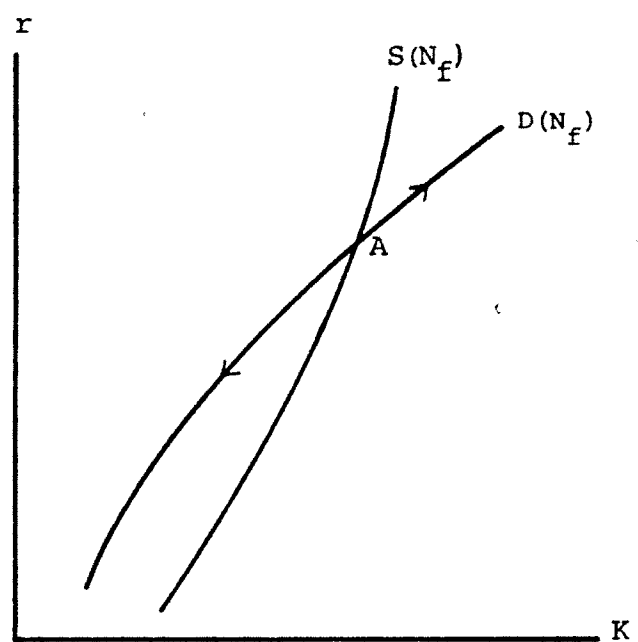


Figure 1

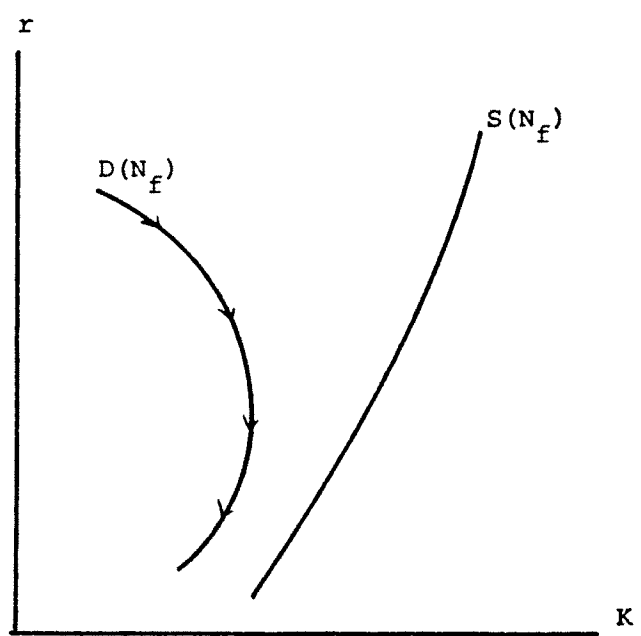


Figure 2

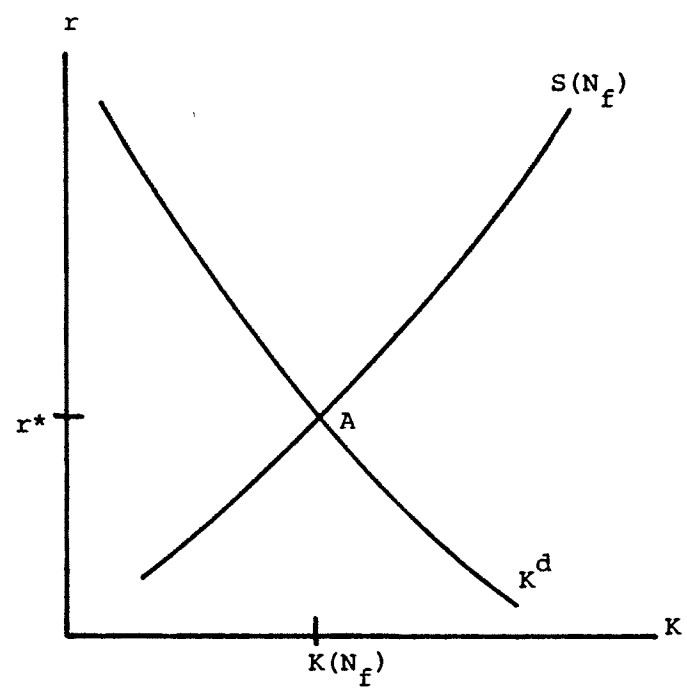


Figure 3

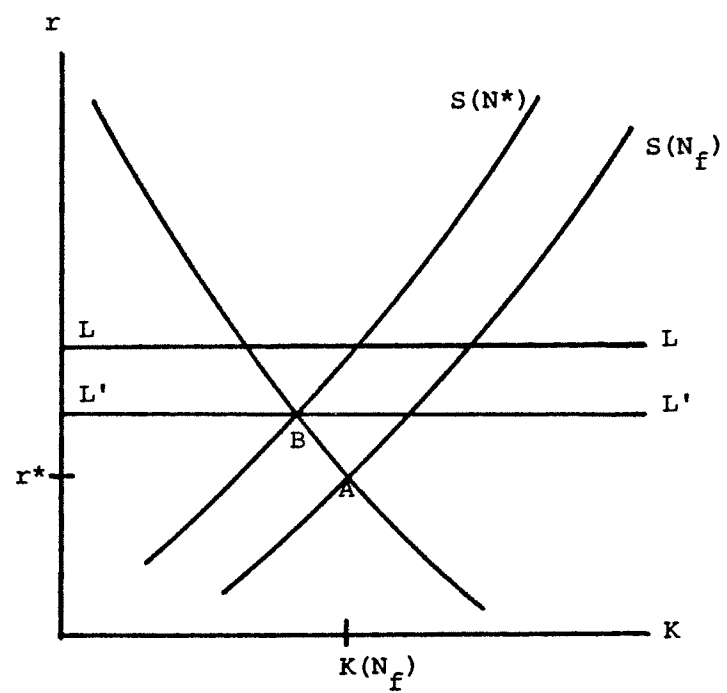


Figure 4

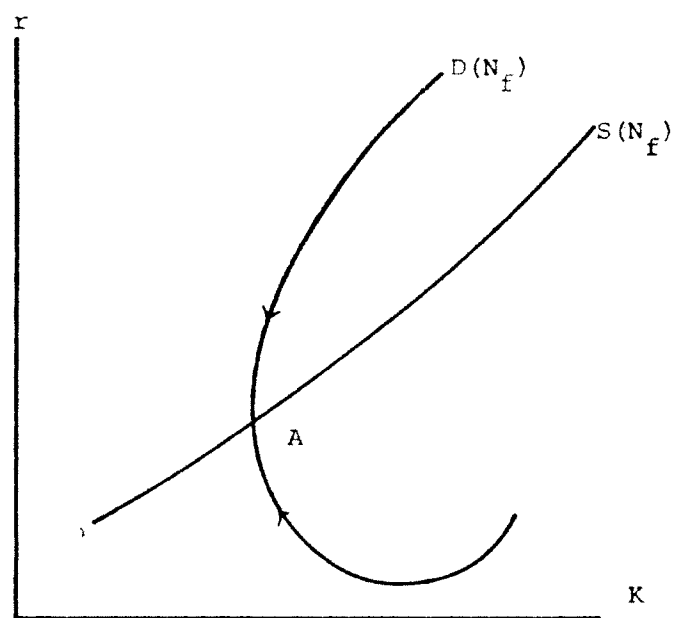


Figure 5

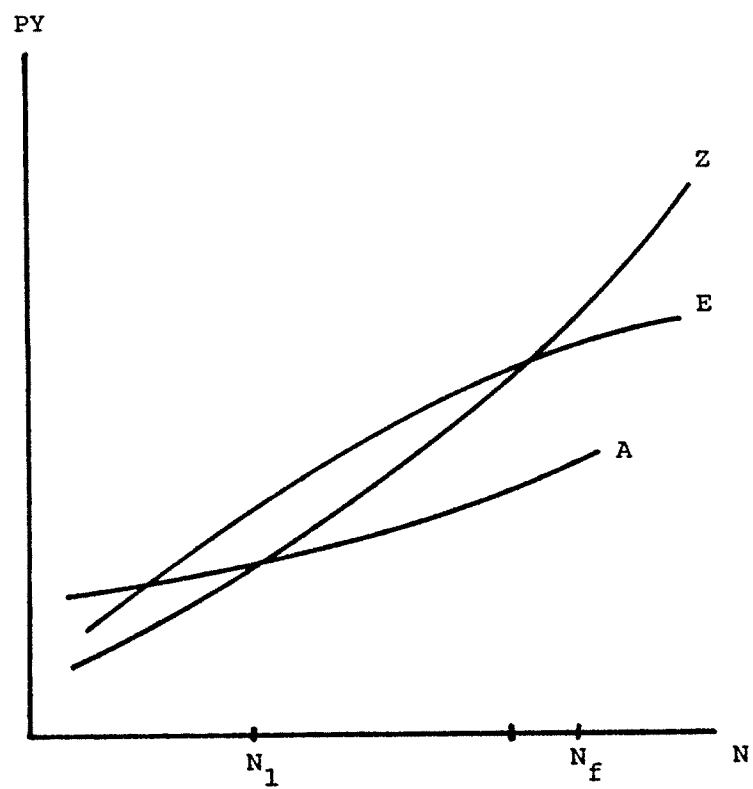


Figure 6

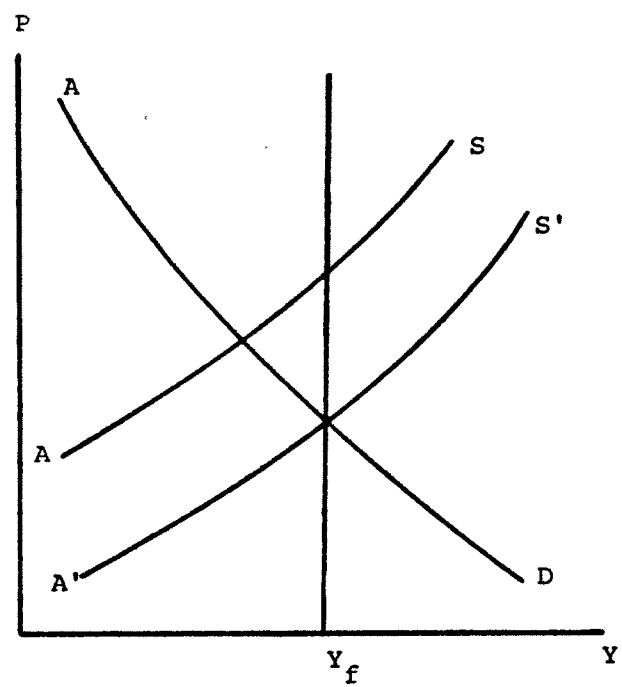


Figure 7

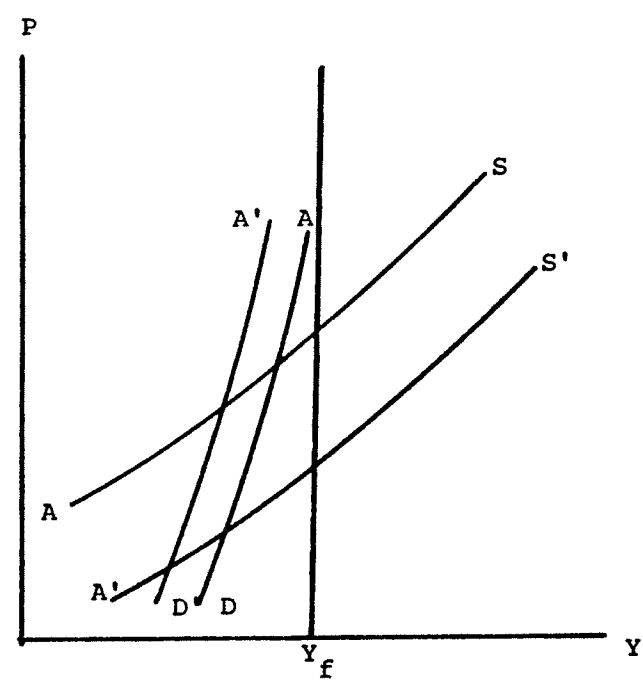


Figure 8