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contents

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Keynes and Sraffa: Visions and Perspectives *

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1. INTRODUCTION

Piero Sraffa's *Production of Commodities by Means of Commodities* has stimulated the writing of numerous articles and books, as economic theorists have tried to come to grips with the implications of this seminal work. It has led to the reconsideration of other approaches to economic theory, and the demonstration of the absence of a theoretical basis for "*any* notion of capital as a measurable quantity independent of distribution and prices" [1] was a critical element in the "reswitching" arguments of the 1960's [2]. Sraffa's subtitle for his book was "Prelude to a Critique of Economic Theory", with the theory referred to being the neoclassical or marginalist explanation of prices and distribution that was developed from the 1870's. Keynes's theory of employment, presented in *The General Theory of Employment, Interest and Money*, also represents a fundamental criticism of this neoclassical approach [3], since he tries to establish that the equilibrium position in the economy is not one of full employment. Even though they both provide the basis for fundamental critiques of the neoclassical approach to economics, these works of Sraffa

* Paper presented at the Conference on "Sraffa's *Production of Commodities by Means of Commodities* after 25 Years", Florence, August, 1985.

[1] P. SRAFFA, *Production of Commodities by Means of Commodities*, Cambridge, CUP, 1960, p. 38.

[2] Cf. "Paradoxes in Capital Theory: A Symposium", *Quarterly Journal of Economics*, LXXX, November 1966; G. C. HARCOURT, *Some Cambridge Controversies in the Theory of Capital*, Cambridge, CUP, 1972.

[3] Keynes expected his book to have a profound effect on economic theory. He wrote to George Bernard Shaw at the beginning of 1935 "that I believe myself to be writing a book on economic theory which will largely revolutionise... the way the world thinks about economic problems". J. M. KEYNES, *Collected Writings*, Vol. XIII, *The General Theory and After: Part I, Preparation*, London, Macmillan, 1973, p. 492.

and Keynes focus on different questions. The former is concerned with the determination of relative prices, given technology and final output, and the latter with the factors determining output and employment. On the surface the two appear to be, at least potentially, compatible, since Sraffa's work leaves open the question of the determination of the level of output, and it has been argued that "his system is compatible... with Keynes's theory"[4]. It has also been argued that the replacement of the marginalist elements in Keynes's analysis by Sraffa's explanation of relative prices, will provide a much firmer basis for Keynes's critique of the view that the "normal" level of employment in a capitalist economy is one of full employment[5].

Attempts to "marry" the Sraffa and Keynes approaches to economic theory overlook the fundamental difference between them — the difference in the role of time and the visions of the operations of capitalist economies implicit in these theories. That this is, at least partly, recognized by those who are trying to combine the two theories, is evident in the attempt to interpret Keynes's *General Theory* as being concerned with "long-period" output and employment[6]. The present paper will deal mainly with Keynes's *General Theory*, and the position taken is that its short-period setting is a critical feature of this theory that must be part of any attempt to consider its implications for developments over time. For purposes of contrast it is useful to begin with a brief statement of what appears to be the economic basis of Sraffa's approach to the determination of prices.

2. SRAFFA'S PRICES OF PRODUCTION

Sraffa's system of production is set in a particular period of time, a year[7], in which the technical relations of production and the total amount to be produced of each commodity are fixed. These technical relations show (in Part I of the book where there are only single-product industries) the amounts of each of the commodities and of labour (which for purposes of simplification is taken to be homogeneous) required to produce the specific output of each commodity. It is assumed in the main

[4] A. Roncaglia, *Sraffa and the Theory of Prices*, New York, John Wiley and Sons, 1978, p. XVIII.

[5] Cf. P. Garegnani, "Notes on Consumption, Investment and Effective Demand", Part II, *Cambridge Journal of Economics*, III, March, 1979, p. 79.

[6] Cf. J. Eatwell, "Theories of Value, Output and Employment" (1979), in J. Eatwell, M. Milgate (eds.), *Keynes's Economics and the Theory of Value and Distribution*, New York, Oxford University Press, 1983; M. Milgate, *Capital and Employment: A Study of Keynes's Economics*, London, Academic Press, 1982.

[7] P. Sraffa, *op. cit.*, p. 3.

body of the book that the system produces a surplus — more is produced in the year of at least one of the commodities than is required as an input, and at least enough is produced of all the other commodities to replace the amounts used as inputs. In order to determine the prices of production in such a system it is necessary to know how the surplus is to be divided between wages and profits. Sraffa asserts that in his system there will be an equal rate of profits in all industries. There is no attempt to justify this assumption, he simply states when setting out his price equations "we add the rate of profits (which must be uniform for all industries)" [8]. If the share of the surplus going to wages is then given, prices and this equal rate of profits can be determined. For different shares of surplus going to wages, relative prices as well as the rate of profits will, in general, differ.

Sraffa obtains in this way an explanation of relative prices that depends only on technical relations of production and distributive shares. The commodity composition of the surplus is taken as given in all the comparisons of differences in prices, and there is no investigation of the effect of differences in demand on prices. If the assumption of constant returns to scale in each industry were added, then demand could be said to have no effect on relative prices, but Sraffa makes no such assumption. He noted in his Preface that "[N]o changes in output... are considered, so that no question arises as to the variation or constancy of returns" [9]. The question of whether demand could affect the prices of production in a complete economic system [10] of which Sraffa's system of production is a part, is thus left formally open even though the general thrust of Sraffa's work implies that demand is not important in this context or, at least, that its influence on price is "not comparable" with those of labour and material inputs [11].

Sraffa writes that the "standpoint" of his investigation "is that of the old classical economists from Adam Smith to Ricardo" [12], and his prices of

[8] *Ibid.*, p. 6.

[9] *Ibid.*, p. V.

[10] As Mrs. Robinson stated in her 1961 review of this book, "we are given only half of an equilibrium system to stand on". J. ROBINSON, *Collected Economic Papers*, Vol. III, Oxford, Blackwell, 1965, p. 9.

[11] I had written to Sraffa in 1971 and had observed that his theoretical framework did not permit any conclusions about the effects of demand on prices unless the assumption of constant returns to scale were added. He responded in a letter dated 11 July, 1971. "You say 'I don't see how demand can be said to have no influence on... prices, unless constant returns...'. I take it that the drama is enacted on Marshall's stage where the claimants for influence are utility and cost of production. Now utility has made little progress (since the 1870's) towards acquiring a tangible existence and survives in textbooks at the purely subjective level. On the other hand, cost of production has successfully survived Marshall's attempt to reduce it to an equally evanescent nature under the name of 'disutility', and is still kicking in the form of hours of labour, tons of raw materials, etc. This rather than the relative slope of the two curves, is why it seems to me that the 'influence' of the two things on price is not comparable".

[12] P. SRAFFA, *op. cit.*, p. V.

production have thus been identified with the "natural" or long-period prices of the classical economists [13]. These prices are viewed as "centers of gravitation" for actual, market prices [14]. Sraffa's system of production and the specification of distributive shares only allow for the mathematical derivation of prices of production, there is nothing in his analysis to justify the treatment of prices of production as values towards which actual prices tend to move. He does not deal with dynamic processes of adjustment [15]. The only "time" in the system is the "year" during which production takes place, and there is no linking of "years" — even in an informal manner — in order to indicate the possible relationship between the prices of production and actual prices [16].

With Keynes's *General Theory* we are in a very different analytical environment, even though relatively little attention is paid to dynamic processes. The focus is on the factors affecting the determination of output and employment in the short period, with some consideration being given as to whether there would be reliable forces at work tending to move the economy to a position of full employment over time. The conclusion is a negative one, with no weight being given to the possibility of attraction being exerted by long-period equilibrium values.

[13] Cf. P. GAREGNANI, "Notes on Consumption, Investment and Effective Demand: A Reply to Joan Robinson", *Cambridge Journal of Economics*, III, June, 1979, p. 185.

[14] Cf. P. GAREGNANI, "On a Change in the Notion of Equilibrium in Recent Work on Value and Distribution", in M. BROWN, K. SATO, P. ZAREMBKA (eds.), *Essays in Modern Capital Theory*, Amsterdam, North-Holland Publishing Company, 1976, pp. 26-29; M. MILGATE, *Capital and Employment, op. cit.*, p. 20.

[15] Newman has written that Sraffa's assumption that the rate of profits should be the same in each industry "is obviously the equilibrium condition (in a world of certainty) for a dynamic process in which each capitalist tries to maximize his profits". P. NEWMAN, "Production of Commodities by Means of Commodities", *Schweizerische Zeitschrift für Volkwirtshaft und Statistik*, XCVIII, 1962, p. 63. Similarly, Carvalho has argued that the view of prices of production as centers of gravitation "clearly involves the idea of a process and of a time span necessary for the production prices to emerge and assert themselves". F. CARVALHO, "On the Concept of Time in Shacklean and Sraffian Economics", *Journal of Post Keynesian Economics*, VI, Winter 1983-84, p. 274. In a later work he stated that implicit in the view of prices of production as a center of gravitation is a theory of investment where investments "must be determined by *current* differences in rates of profit while mistaken investments do not lead to the loss of the capital value invested. Thus, firms are able to reorient their resources from less to more profitable sectors without significant capital loss". F. CARVALHO, "Alternative Analyses of Short and Long Run in Post Keynesian Economics", *Journal of Post Keynesian Economics*, VII, Winter, 1984-85, p. 219, italics in original.

[16] Roncaglia has argued that in contrast to neoclassical theories that "are placed in an atemporal context as a consequence of the attempt to identify an equilibrium position for the values of the variables of the economic system under consideration... it would seem more correct to say that Sraffa's analysis is not static, but rather that it represents a 'photograph' of a particular moment of a system's development... time is taken into account by the fact that any particular moment of time is determined by its past history, and serves as the determining factor of the next moment in time". A. RONCAGLIA, *op. cit.*, p. 219. Prices of production can, of course, be derived for any "particular moment of time", but there is nothing in Sraffa's analysis to indicate the relationship between actual prices and these prices of production. There is no "movement" from one "moment" to the other, or any movement within a "moment".

3. KEYNES'S THEORY OF EMPLOYMENT

Keynes's analysis of the factors determining the level of output and employment in an economy is set in a Marshallian short period. "We take as given the existing skill and quantity of available labour, the existing quality and quantity of available equipment, the existing technique..." [17]. His theory is concerned, in a formal sense, with the equilibrium level of output and employment in such a period, and in a less formal sense with whether over time — over a sequence of short periods — automatic forces would be set in motion to move the economy towards a position of full employment. In the one-paragraph first chapter of the *General Theory*, Keynes explains why he is "placing the emphasis on the prefix *general*" [18] in the title of his book. He states that the postulates of what he calls the "classical" theory are "applicable to a special case only and not to the general case, the situation it assumes being a limiting point of the possible positions of equilibrium" [19]. The implication is that his theory is concerned with the general case, where equilibrium with full employment is only one of many possibilities [20]. The term "equilibrium" as used by Keynes refers to a position of rest for the variable of interest (employment in this case) given the values of the parameters, and not necessarily one where there is no change in the values of other variables [21]. Equilibrium for Keynes in this book does not refer to a situation where prices and quantities transacted are such that all individuals are on their demand and supply curves.

The critical decision makers in Keynes's model are the entrepreneurs. They decide on the levels of employment and output in the short period in the light of short-term expectations of prices and costs, and they determine investment on the basis of long-term expectations. The setting for Keynes's model can be viewed as a particular "moment" in historical

[17] J. M. KEYNES, *The General Theory of Employment, Interest and Money*, London, Macmillan, 1936, p. 245.

[18] *Ibid.*, p. 3, italics in original.

[19] *Ibid.*, p. 3.

[20] Another explanation for the use of the word "general", a concern with aggregate output, is given by Kahn. He refers to Keynes's February 1939 preface to the French edition of the *General Theory* where the latter wrote "I have called my theory a *general* theory. I mean by this that I am chiefly concerned with the behaviour of the economic system as a whole...", in support of this explanation rather than the one contained in chapter one. Kahn concludes that "[T]his is a far more fruitful exposition of the meaning of the word 'general' — the result of three years of discussion and thought". R. F. KAHN, *The Making of Keynes' General Theory*, Cambridge, CUP, 1984, p. 121. But this interpretation is best viewed as an additional justification for the use of the word "general", since Keynes was not maintaining in his book that the early classical writers had no concern "with the behaviour of the economic system as a whole".

[21] Cf. A. ASIMAKOPULOS, "Keynes, Patinkin, Historical Time and Equilibrium Analysis", *Canadian Journal of Economics*, VI, May 1973; D. PATINKIN, *Anticipations of the General Theory? And Other Essays*, Chicago, University of Chicago Press, 1982, p. 14.

time — a "moment" whose characteristics have been determined by decisions and actions in the past — in fact, this moment is defined by the "existing quality and quantity of available equipment, the existing technique..."[22]. This is one reason for its identification with Marshall's short period, to which a calendar dimension of "a few months or a year"[23] is given. Changes in equipment and techniques are, of course, taking place in a progressive economy even within such a period, but the effects of these changes are small relative to those of the initial conditions, and it is not unreasonable to ignore them[24]. Keynes concentrates on equilibrium situations in these short periods; he does not deal with the process of adjustment to equilibrium positions or the time required to reach a new equilibrium position after a change in the values of the parameters. Although Keynes's analysis is in "historical time" from the point of view of its setting and his emphasis on the expectational basis of decisions and actions, it is "out of time" in terms of its limitation to situations of equilibrium[25]. With its use of given equipment and techniques, Keynes's short period must occupy a relatively brief span of time in an economy where there is net investment, but the time required to reach a position of equilibrium after a change may be greater than this interval[26]. Keynes simply concentrates on positions of short-period equilibrium, presumably to contrast his conclusions with the equilibrium results of "classical" theory[27].

[22] J. M. KEYNES, *op. cit.*, p. 245.

[23] A. MARSHALL, *Principles of Economics*, 8th edition, London, Macmillan, 1920, p. 379.

[24] Keynes notes, when specifying that equipment and technique are taken as given, that "[T]his does not mean that we assume these factors to be constant; but merely that, in this place and context, we are not considering or taking into account the effects and consequences of changes in them. J. M. KEYNES, *op. cit.*, p. 245.

[25] "A state of equilibrium, by definition, is a state in which something, something relevant, is *not* changing; so the use of an equilibrium concept is a signal that time, in some respect at least, has been put to on a side". J. R. HICKS, "Some Questions of Time in Economics" in A. M. TANG, F. M. WESTFIELD, J. S. WORLEY (eds.), *Evolution, Welfare, and Time in Economics: Essays in Honor of Nicholas Georgescu-Roegen*, Lexington, Mass., Lexington Books, 1976, p. 140, italics in original.

[26] Hicks has noted the difficulty of reconciling the time intervals implicit in Keynes's analysis. "It is one of the major difficulties of the Keynes theory (a difficulty that was acutely felt by its first readers, though it has now been lulled to sleep by long familiarity) that it works with a *period* which is taken to be one of equilibrium (investment being equal to saving, saving that is a function of *current* income), and which is nevertheless identified with the Marshallian 'short period', in which capital equipment (now the capital equipment of the whole economy) remains unchanged. The second seems to require that the period should not be too long, but the first requires that it should not be too short; for the *process* of getting into the equilibrium in question (the multiplier process) must occupy a length of time that is by no means negligible. It is not easy to see that there can be any length of time that will adequately satisfy both requirements". J. R. HICKS, *Capital and Growth*, Oxford, Clarendon Press, 1965, pp. 64-5, italics in original.

[27] Keynes tended to identify these equilibrium values with actual values. For example, he stated that "except in conditions where the consumption industries are already working almost at capacity so that an expansion of output requires an expansion of plant and not merely the more intensive

Given his aim of dealing with the factors determining the level of aggregate output, Keynes had to adapt Marshall's short-period supply curves for individual goods to serve this purpose. He distrusts measures and comparisons of aggregate output, because "the community's output of goods and services is a non-homogeneous complex which cannot be measured..."[28]. He thus relies "on the general presumption that the amount of employment associated with a given capital equipment will be a satisfactory index of the amount of resultant output"[29]. The employment in any period is the result of decisions that depend on short-term expectations that are "concerned with the price a manufacturer can expect to get for his 'finished' output at the time when he commits himself to starting the process which will produce it"[30]. These individual expectations of prices — together with the cost conditions of the individual firms — are then turned into expectations of proceeds for purposes of aggregation. The profit-maximizing competitive firms produce outputs that equate these expected prices and marginal costs, and their short-term expectations of proceeds are the proceeds they would receive if they sold these outputs at the expected prices. Since these proceeds are measured in dollar terms, they can be aggregated over the economy, and for each set of expected prices they provide (once user costs are deducted) a point on the aggregate supply function[31].

Keynes emphasized the importance of expectations in a theory of employment: "The expected results are not on a par with the *realised* results in a theory of employment. The *realised* results are only relevant in so far as they influence the ensuing expectations in the next production period"[32]. He could thus have gone on from this perspective to define effective demand as the value of proceeds at the point on the aggregate supply curve corresponding to the short-term expectations of proceeds of entrepreneurs, since in this theory it is this value that determines the amount of employment offered by firms. But Keynes concentrated on situations of short-period equilibrium where the short-term expectations of firms are borne out by events — he identifies the aggregate demand

employment of the existing plant, there is no reason to suppose that more than a brief interval of time need elapse before employment in the consumption industries is advancing *pari passu* with employment in the capital-goods industries with the multiplier operating near its normal figure". J. M. KEYNES, *op. cit.*, pp. 124-5.

[28] *Ibid.*, p. 38.

[29] *Ibid.*, p. 41.

[30] *Ibid.*, p. 46.

[31] For the derivation of the aggregate supply curve from industry short-period supply curves, see A. ASIMAKOPULOS, "Keynes' Theory of Effective Demand Revisited", *Australian Economic Papers*, XXI, June 1982.

[32] J. M. KEYNES, *Collected Writings*, Vol. XIV, *The General Theory and After: Part II, Defence and Development*, London, Macmillan, 1973, p. 179, italics in original.

function[33] with the value of proceeds that would be received by firms at alternate levels of employment in the economy — and he defines effective demand as the value "of the aggregate demand function, where it is intersected by the aggregate supply function..."[34]. The proceeds on the aggregate demand function are also taken to be equilibrium values. The consumption expenditures that are included in this function are assumed to be in the desired relation to income, and the investment expenditures are equal to those which firms planned to make in the period.

The factors underlying the aggregate demand and supply functions thus explain the determination of equilibrium employment in the particular short period of the economy. This equilibrium was stable — given the level of investment — because at a value for employment higher (lower) than this equilibrium level, the aggregate supply price would lie above (below) the aggregate demand price. This relationship was assumed to hold because "[T]he psychology of the community is such that when aggregate real income is increased aggregate consumption is increased, but not by so much as income"[35]. Although in the statement of the "essence" of his general theory of employment[36], Keynes gives equal emphasis to the role of the propensity to consume and to the volume of investment, it is to the latter that he keeps referring to for an explanation of why employment could be less than full. For example, "... to justify any given amount of employment there must be an amount of current investment sufficient to absorb the excess of total output over what the community chooses to consume when employment is at the given level... It follows... that, given what we shall call the community's propensity to consume, the equilibrium level of employment... will depend on the amount of current investment"[37]. In his 1937 reply to reviewers of the *General Theory* in the *Quarterly Journal of Economics*, Keynes referred to investment as the "*causa causans*" of the economic system, because of the unreliability of the factors "which determine the rate of investment... since it is they which are influenced by our views of the future about which we know so little"[38].

[33] Parrinello, Casarosa and Asimakopulos have pointed out that Keynes's first definition of the aggregate demand function is not consistent with the competitive microfoundations of his theory. Cf. S. PARRINELLO, "The Price Level Implicit in Keynes' Effective Demand", *Journal of Post Keynesian Economics*, III, Fall 1980; C. CASAROSA, "The Microfoundations of Keynes's Aggregate Supply and Aggregate Demand Analysis", *Economic Journal*, XCI, March 1981; A. ASIMAKOPULOS, "Keynes' Theory of Effective Demand Revisited", *op. cit.*

[34] J. M. KEYNES, *The General Theory, op. cit.*, p. 25.

[35] *Ibid.*, p. 27.

[36] "... the volume of employment in equilibrium depends on (i) the aggregate supply function... (ii) the propensity to consume... and (iii) the volume of investment...". *Ibid.*, p. 29.

[37] *Ibid.*, p. 27.

[38] J. M. KEYNES, *Collected Writings*, Vol. XIV, *op. cit.*, p. 121.

Keynes's central message in the *General Theory* is thus twofold. There is first the theory of effective demand, whereby output and employment for the economy are determined by the intersection of aggregate demand and supply curves, and second there is the unreliability of the factors determining investment, which explains why aggregate demand will be variable and often less than sufficient to ensure full employment[39].

4. THE DETERMINATION OF INVESTMENT IN KEYNES'S THEORY

Keynes presents two seemingly different approaches to the determination of investment — one in chapter 11 of the *General Theory*, and the other in chapter 12 as well as in his 1937 *Quarterly Journal of Economics* paper. The first approach emphasizes the inverse relationship between the rate of interest and investment, while the second, although not excluding the possibility of such a relationship, looks primarily to states of mind and attitudes in the face of an uncertain future as the major factors underlying investment decisions[40].

The presentation in chapter 11 implies the existence of a stable, downward-sloping investment-demand schedule with investment being pushed to the "point on the investment demand-schedule where the marginal efficiency of capital in general is equal to the market rate of interest"[41]. It is from such a schedule that an IS curve can be derived[42]. The reason Keynes gives for a diminishing marginal efficiency of capital schedule as investment increases is not consistent with the framework of his analysis, as Kalecki pointed out in his 1936 review of the *General Theory*[43]. The marginal efficiency of capital is expected to be lower, the

[39] Patinkin argues that only the first of the two components given above is Keynes's "central message", but Kahn is in agreement with the position taken here. Cf. D. PATINKIN, *Anticipations of the General Theory?, op. cit.*, p. 30; R. F. KAHN, *The Making of Keynes' General Theory, op. cit.*, p. 142.

[40] Shackle presents the difference between these two approaches as follows: "Chapter 11 shows us the arithmetic of the marginal efficiency of capital and its relation with interest-rates, a matter for actuaries and slide-rules. Chapter 12 reveals the hollowness of all this. The material for the slide-rules is absent, or arbitrary. Investment is an *irrational* activity, or a non-rational one. Surmise and assumption about what is happening or about to happen are themselves the *source* of these happenings, men make history in seeking to apprehend it. This is the message of the *General Theory*, and that is the only part of it which Keynes troubled to reproduce when in the *Quarterly Journal of Economics* for February 1937 he brushed aside the painstaking detail of his critics' incomprehension and attempted a final penetration of their minds". G. L. S. SHACKLE, *The Years of High Theory: Invention and Tradition in Economic Thought, 1926-1939*, Cambridge, CUP, 1967, p. 130, italics in original.

[41] J. M. KEYNES, *The General Theory, op. cit.*, p. 137.

[42] Cf. J. R. HICKS, "Mr. Keynes and the 'Classics': A Suggested Interpretation", *Econometrica*, V, April, 1937.

[43] Cf. F. TARGETTI, B. KINDA-HASS, "Kalecki's Review of Keynes' General Theory", *Australian Economic Papers*, XXI, December, 1982.

higher the investment in Keynes's short period because of the higher price of capital goods, which are produced under conditions of increasing costs. This argument contains both *ex ante* and *ex post* features. The expectations of profitability, of future quasi-rents from the purchase of capital goods, is *ex ante*, but the higher prices of capital goods which are required to make the marginal efficiency of capital schedule dowward-sloping, would only be experienced as a result of a general increase in investment. If such an increase occurred, prices of other goods and profitability in general would also increase, so that it would not be reasonable to assume that the expectations of future quasi-rents would be unchanged[44].

In chapter 12 the viewpoint shifts from the dependence on the calculation of yields to recognition of "the extreme precariousness of the basis of knowledge on which our estimates of prospective yield have to be made. Our knowledge of the factors which will govern the yield of an investment some years hence is usually very slight and often negligible"[45]. Estimates made on such a basis are subject to large margins of error and to substantial change in the light of current events. Keynes thus backs away from the idea of a stable investment-demand schedule that can be acted on by monetary policy. "... it seems likely that the fluctuations in the market estimation of the marginal efficiency of different types of capital, calculated on the principles I have described above, will be too great to be offset by any practicable changes in the rate of interest[46].

With investment being subject to fluctuations for the reasons given above, the short-period equilibrium levels of employment determined by these fluctuating investments, will also fluctuate. There is no reason to expect from Keynes's analysis that these fluctuations will be around some full-employment level — there are no "normal" long-period values that serve as centers of gravitation for actual values in Keynes's theory[47].

5. LONG-PERIOD EMPLOYMENT IN THE GENERAL THEORY

The present interpretation of the *General Theory* has emphasized its short-period framework. This theory concentrates on what has been referred to here as "short-period equilibrium employment". This is the

[44] Cf. A. Asimakopulos, "The Determination of Investment in Keynes's Model", *Canadian Journal of Economics*, IV, August, 1971.

[45] J. M. Keynes, *The General Theory, op. cit.*, p. 149.

[46] *Ibid.*, p. 164.

[47] Recall that Keynes did not believe that falling money wages in times of unemployment could be relied on to increase investment and bring about full employment. "There is... no ground for the belief that a flexible wage policy is capable of maintaining a state of continuous full employment". *Ibid.*, p. 267.

level of employment corresponding to a situation where actual investment is equal to planned investment, and consumption is in the desired relation to income. In this equilibrium situation the short-term expectations of proceeds held by entrepreneurs are borne out by events in this short period. The proceeds of capital-goods producers (equal, in this case to their short-term expectations) come from investment expenditures, and they thus depend on the long-term expectations of investing firms. These long-term expectations may have been held at different times in the past, since the time-lags in the investment process are such that investment expenditures in any short period are the result of decisions taken at different times. The actual investment in any period is thus, in general, the result of more than one state of long-term expectations. Keynes looks briefly at a very special case where *all* the investment in a short period is the result of a particular state of long-term expectations. The resulting level of employment is "called the long-period employment corresponding to that state of expectation" [48]. Keynes added a footnote to this definition:

> It is not necessary that the level of long-period employment should be *constant*, *i.e.* long-period conditions are not necessarily static. For example, a steady increase in wealth or population may constitute a part of the unchanging expectation. The only condition is that the existing expectations should have been foreseen sufficiently far ahead [49].

The level of employment being referred to in all these cases is, of course, short-period employment, but short-period employment based on investment guided by identical long-term expectations. If these expectations are that stationary conditions will prevail, then this employment would be that corresponding to zero net investment [50]. But the unchanging expectations may be of a steady increase in demand over time, with the rates of investment generated by these expectations increasing over time. The corresponding long-period employment would then also be increasing from one short period to the next.

The relationship between Keynes's long-period (equilibrium) employment and his short-period (equilibrium) employment bears a superficial resemblance to the relationship between Marshall's long-period equilibrium and short-period equilibrium for competitive industries [51]. A

[48] J. M. KEYNES, *The General Theory, op. cit.*, p. 48.

[49] *Ibid.*, p. 48 n.

[50] This is the case examined by J. ROBINSON in *Essays in the Theory of Employment*, London, Macmillan, 1937, pp. 105-138.

[51] Cf. A. ASIMAKOPULOS, "'Long-period Employment' in the General Theory", *Journal of Post Keynesian Economics*, VII, Winter, 1984-85.

situation of long-period equilibrium must also be one of short-period equilibrium in both cases. For Marshall, long-period equilibrium values tend to attract short-period values[52], but there is not even a hint in Keynes's presentation of long-period employment serving as a center of attraction for actual values[53].

6. LONG-PERIOD INTERPRETATIONS OF THE GENERAL THEORY

Eatwell and Milgate have argued for an interpretation of Keynes's theory of output and employment as one concerned with "the long-period level of output"[54]. This view differs from the one taken here, which is consistent with statements made by Keynes's close associates. Joan Robinson has always emphasized the short-period framework of Keynes's analysis and she noted, for example, that "Keynes hardly ever peered over the edge of the short period to see the effect of investment in making additions to the stocks of productive equipment"[55]. Lord Kahn has recently reaffirmed this position with his statement: "The *General Theory* is short-period in the Marshallian sense"[56]. The bases for the long-period interpretation advanced by Eatwell and Milgate are a few statements in the *General Theory*. They give a special reading to Keynes's listing of the factors he takes as given when he comes to restate his *General Theory* in chapter 18, and they then attach great weight to Keynes's reference to "'natural' tendencies", which "are likely to persist", in the final paragraph of that chapter.

Eatwell argues that "the fixed composition of the capital stock which defines Marshall's short period plays no role in Keynes's theory of employment — unemployment is, according to Keynes, not due to the shortage of a particular capital good, but to a lack of effective demand"[57].

[52] Marshall recognized that this attraction depends on the stationarity of conditions. "... the normal, or 'natural', value of a commodity is that which economic forces tend to bring about *in the long run*. It is the average value which economic forces would bring about if the general conditions of life were stationary for a run of time long enough to enable them all to work out their full effect". A. MARSHALL, *Principles of Economics, op. cit.*, p. 347.

[53] Vicarelli has emphasized that in Keynes's view of the capitalist system "there is absolutely no mechanism to guarantee that investment will stabilize at some long-term norm, or that its variation over time adheres to a regular law". F. VICARELLI, *Keynes: The Instability of Capitalism*, Philadelphia, University of Pennsylvania Press, 1984, p. 177.

[54] Cf. J. EATWELL, *op. cit.*, p. 98; M. MILGATE, *op. cit.*, pp. 84-91.

[55] J. ROBINSON, "Keynes and Ricardo", *Journal of Post Keynesian Economics*, I, Fall 1978, p. 14.

[56] R. F. KAHN, *op. cit.*, p. 122.

[57] J. EATWELL, *op. cit.*, p. 97.

This position is based on a misinterpretation of the use of Marshall's short-period in Keynes's analysis. The composition and quantity of capital equipment is taken as given, with the focus being on the degree of utilization on average, of that equipment. It is not inconsistent in a macroeconomic analysis to overlook, for purposes of arriving at a general characterization of the situation in the economy, the possibility that an industry may have insufficient productive capacity to meet demand, even though plant in most other industries is operating at less than full capacity. This does not deprive the macroeconomic analysis of its short-period status. Keynes's recognition that even in a short period changes in equipment are taking place, does not make his analysis a long-period one. The effects of these changes are ignored by Keynes because within the time period of his analysis they are small relative to initial values. Keynes's aggregate supply function, an essential element of his theory of effective demand, is based on the assumption of given productive capacity. Keynes incorporated in his theory the inverse relation between the real-wage rate and the level of investment, a relation based on "the familiar proposition that industry is normally working subject to decreasing returns in the short period during which equipment etc. is assumed to be constant..."[58]. If Keynes were dealing with long-period output, as Eatwell and Milgate contend, then he would have had no basis for this inverse relation.

Eatwell interprets Keynes's statement qualifying the assumption of given equipment: "This does not mean that we assume these factors to be constant; but merely that, in this place and context, we are not considering or taking into account the effects and consequences of changes in them"[59], as ruling out "changes in the dominant and persistent forces"[60] which Marshall classified as affecting secular movements in normal prices[61]. An alternative reading of Keynes's statement that is consistent with Marshall's three periods for the analysis of "normal prices" — "short", "long" and "secular" — is that Keynes in the *General Theory* was, in the main body of this work, abstracting from the effects of changes in productive capacity that are the concern of long-period analysis. A formal treatment of long-period output would have required the explicit and careful consideration of the effects on productive capacity

[58] J. M. Keynes, *The General Theory, op. cit.*, p. 17.

[59] *Ibid.*, p. 245.

[60] J. Eatwell, *op. cit.*, p. 97.

[61] Milgate, in a similar manner, uses a quotation from Keynes's discussion of the factors possibly influencing the propensity to consume to interpret his "given equipment" assumption as an attempt "to allow the analysis to proceed without the need to consider [the effects of secular progress]". M. Milgate, *op. cit.*, p. 90.

of investment. Such a treatment — a theory of accumulation — is absent in the *General Theory*[62].

There is also the matter of the interpretation to be given to Keynes's statement at the end of chapter 18:

> ... the outstanding features of our actual experience; — namely, that we oscillate, avoiding the gravest extremes of fluctuation in employment and in prices in both directions, round an intermediate position appreciably below full employment and appreciably above the minimum employment a decline below which would endanger life.
>
> But we must not conclude that the mean position thus determined by "natural" tendencies, namely, by those tendencies which are likely to persist, failing measures expressly designed to correct them, is, therefore, established by laws of necessity. The unimpeded rule of the above conditions is a fact of observation concerning the world as it is or has been, and not a necessary principle which cannot be changed[63].

Eatwell takes the above statements to mean that "[T]he *persistent* forces establish the long-period level of output; it is these forces and that level which Keynes's theory is designed to explain"[64]. Keynes's statements should, however, be interpreted in the light of his views on investment. He did not believe that investment, determined by entrepreneurs in a capitalist economy subject to change, would settle down at a level that

[62] Garegnani, who has argued for the development of a theory of output in the long period that builds on the critique of the neoclassical conception of capital, recognizes the short-period character of Keynes's writings. Cf. P. GAREGNANI, "Notes on Consumption", *op. cit.* and "Notes on Consumption...: A Reply to Joan Robinson", *op. cit.* Eatwell and Milgate in their Preface to a collection of papers that include these and other papers by Garegnani, raise the question "... does Keynes's principle of effective demand provide a new long-run theory of output...?". J. EATWELL, M. MILGATE (eds.), *Keynes's Economics and the Theory of Value and Distribution, op. cit.* A footnote attached to this question reports on a letter from Garegnani containing an argument with which they are not in agreement. Garegnani writes: "The meaning of 'long run' cannot but be partly different when used in connection with a theory of aggregate output than when it is used for the theory of relative output. While the meaning of given plant or productive capacity remains, what is relevant for Marshall is the lack of congruence between relative capacity and relative demand in the several industries. What is relevant for a theory of aggregate output like that of Keynes is the lack of congruence between aggregate capacity and aggregate demand... When this distinction is made it should be clear that Keynes is concerned with a short period analysis of aggregate output (the determination of the level of capacity utilisation) 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 from Keynes apart from some hints we find in the first two sections of chapter 24 of the *General Theory*".

[63] J. M. KEYNES, *The General Theory, op. cit.*, p. 254.

[64] J. EATWELL, *op. cit.*, p. 98. Milgate states that the preceding quotation from Keynes "bears all the hallmarks of the traditional long-period method: the choice of the term 'natural' to describe the tendencies of a market economy and of the term 'persist' to describe their long-period character is the standard fare of the traditional method. The idea that the system oscillates around such a position completes that picture". M. MILGATE, *op. cit.*, p. 88.

would result, given the propensity to consume, in full employment. In fact, there is nothing in his vision of the capitalist system that would lead him to believe that the economy would be attracted to some other "persistent" level of employment. The variability of conditions and uncertainty that affect the outcome of investment decisions, would be reflected in the variability of investment, output and employment. The "intermediate position" around which fluctuations occur, referred to by Keynes, is some average value indicated by "our actual experience" and "observation", rather than a "centre of gravitation".

For Keynes the time path of output and employment depends on the pattern of long-term expectations held over a sequence of periods, because of their effect on investment. Those who argue "that the whole of the innovative core of the *General Theory* is best regarded as dealing with the 'centre of gravitation' of the system"[65], concentrate on Keynes's theory of effective demand[66], *i.e.* the adjustment of desired saving to investment as a result of changes in income. They treat his statements on the importance of the variability of long-term expectations in the face of uncertainty as part of his criticism of the neoclassical theory of interest[67], rather than as an integral part of his theory of employment in a capitalist economy. However, Keynes wrote, in setting out the basis of his theory of employment, "[E]xpress reference to current long-term expectations can seldom be avoided"[68]. It is reference to short-term expectations that is often omitted, on the assumption that they are subject to constant revision in the light of realised results, and Keynes tends to identify them with actual values. In the short-period equilibria on which he focused, the short-term expectations are equal to actual proceeds. It is with reference to this category of expectations that Keynes wrote in his 1937 lecture notes "... the theory of effective demand is substantially the same if we assume that short-period expectations are always fulfilled"[69].

[65] *Ibid.*, p. 90.

[66] This view of the theory of effective demand — divorced from his view on the variability and unreliability of investment — as Keynes's "central message" is, as noted above (p. 41, n. 39) shared by Patinkin, but he accepts the short-period nature of Keynes's theory. The theory of effective demand was the *General Theory's* main addition to Keynes's analysis of the determination of employment. But to understand the "central message" of that work it is important to consider this feature in conjuction with Keynes's views on investment. As Vicarelli wrote "... the *General Theory* is nothing more than the culmination of Keynes's vision of capitalism". F. VICARELLI, *op. cit.*, p. 182.

[67] Cf. P. GAREGNANI, "On a Change in the Notion of Equilibrium", *op. cit.*, pp. 39-42.

[68] J. M. KEYNES, *The General Theory, op. cit.*, p. 50.

[69] J. M. KEYNES, *Collected Writings*, Vol. XIV, *op. cit.*, p. 181. Milgate uses this quotation in support of his position that the "fundamental proposition of the *General Theory*... is entirely independent of the existence of uncertainty and expectations", but he omits the adjective "short-period" that qualifies "expectations" in the quotation. An unwary reader might be misled by the context to assume that Keynes was referring to long-term expectations. Cf. M. MILGATE, *op. cit.*,

7. THE THEORY OF EFFECTIVE DEMAND IN THE SHORT AND LONG PERIOD

Production and employment always occur in a short-period context, with given equipment and technique being utilized. This short-period context never disappears even though the focus of attention is on long-period developments. In considering the latter, one is dealing, at least implicitly, with a succession of short periods as investment and technical progress alter productive capacity and techniques. If, as in the *General Theory*, the analysis concentrates on situations of short-period equilibrium, then employment (in a closed economy, with no government economic activity) in each period will be determined by the level of investment and the economy's propensity to consume[70]. The nature of the theory of effective demand is not altered by extending the analysis to a sequence of short periods. The path traced by the short-period equilibrium output and employment over time depends — assuming that the consumption function is stable — on what happens to investment, that is, on how long-term expectations and financial conditions change. A variety of possible growth paths can be deduced, each reflecting different assumptions about the drive of entrepreneurs, the degree of thriftiness in the economy, financial policies, trade union actions, etc.[71]. Recognition of the infectious nature of good and bad news, and the financial system's propensity to facilitate the capitalization of expected profits[72] lead to the conclusion that growth paths will be disturbed by cyclical movements and interrupted by crises. In fact, cyclical and long-term factors influence one another and are so intertwined that the separation of the two is problematic. In Kalecki's words "... the long run trend is but a slowly changing component of a chain of short run situations; it has no independent entity..."[73]. There is no reason to expect — certainly in the type of world visualized by Keynes — that "in the long period", if this is taken to be some time in the future, productive capacity will become adjusted to demand. The consequences of this occurring — and continuing to hold — for a stretch of time, can be examined. But in a

p. 90 and G. C. HARCOURT, T. J. O'SHAUGHNESSY, "Keynes's Unemployment Equilibrium: Some Insights from Joan Robinson, Piero Sraffa and Richard Kahn", *University of Cambridge, Faculty of Economics and Politics, Research Papers Series*, 30, 1983, p. 16n.

[70] Recall that for Keynes "long-period employment" is not something that tends to occur "in the long run". It is employment in a particular short-period situation where all investment expenditures in that period are determined by the same set of long-term expectations.

[71] Cf. J. ROBINSON, *Essays in the Theory of Economic Growth*, London, Macmillan, 1962, pp. 52-9.

[72] H. P. MINSKY, *Can "It" Happen Again?: Essays on Instability and Finance*, Armonk, New York, M. E. Sharpe, 1982.

[73] M. KALECKI, *Selected Essays on the Dynamics of the Capitalist Economy*, Cambridge, CUP, 1971, p. 165.

changing world such a situation would *not* be a "centre of gravitation" for actual values. In making investment decisions firms try, of course, to anticipate future demand and not to be caught with too much or too little productive capacity, but this route takes us back to the importance of long-term expectations in determining investment, with employment in any short period then depending on this investment.

8. CONCLUSION

Keynes and Sraffa were concerned with very different questions in their two major works under consideration here. The former dealt with the factors determining the level of output and employment, and the latter with those determining prices of production, given output and employment. There was a further important difference between them, and that was in the character of the "equilibrium" implicit in each of their approaches.

Keynes's analysis was centered on a Marshallian short period, and the prices implicit in his model are those determined by the intersection of demand and short-period supply curves. The intersection of his aggregate demand and supply functions is a macroeconomic representation of the intersections of the large number of competitive industry demand and supply curves in his model. Macroeconomic changes would affect the level of costs when, for example, an increase in employment increases money-wage rates, and thus the prices of individual commodities, but this could be readily incorporated in a Marshallian analysis. But Marshall's long-period equilibrium, where productive capacity is adjusted to demand, has no place, even implicitly, in Keynes's analysis. Long-period values can be defined for any given situation of technical knowledge and demand, but in a changing economy such values would be in a continual state of flux, so that they do not serve as the basis of investment decisions and thus do not act as a reliable force of attraction for actual prices. In Keynes's approach investment decisions are based on expected conditions in future time periods, and in the final analysis, after allowing for all the calculations based on current and past data, and informed estimates, these long-term expectations are subjective.

Sraffa's analysis is concerned with the prices of production — prices based on equal rates of profits in all industries — where investment in the different industries has resulted in productive capacity in each that is appropriate to demand. For these prices to serve as centres of gravitation for actual prices, conditions must be changing relatively slowly so that mistaken investments are relatively minor, with actual prices tending towards the prices of production. Investment decisions in this case

— although formally they can be said to be determined by long-term expectations — are basically determined by objective factors. Such a vision of a capitalist economy in the twentieth century is different from that held by Keynes.

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