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Keynes, Kalecki, Sraffa: Coherence?

Neil Hart
Peter Kriesler

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Neil Hart, Industrial Relations Research Centre, UNSW

Peter Kriesler, School of Economics, UNSW

ABSTRACT

This paper, in honour of John King, addresses the question raised by him in his *A History of Post-Keynesian since 1936*, reflected in the title. Initial surveys of post-Keynesian economics defined it in term of the Keynesian, Kaleckian and Sraffian strands. However, subsequently, it has become less clear that the Sraffian stream should be included under the 'broad church' known as post-Keynesian economics. Serious and irreconcilable methodological differences exist between Sraffians and post-Keynesians about the validity of comparisons of long-run equilibrium positions, the role of historical time and the importance of uncertainty.

JEL Codes: B2, B41, B5, D4, D5

Keywords: Keynes, post-Keynesians, Sraffians, methodology, path determinacy, traverse

The first notion to be discarded …. Must be' equilibrium in the long run. (Robinson 1985: 160)

1. Introduction

The title of this paper corresponds to that of a chapter in John King's (2002) *A History of Post-Keynesian since 1936*, where the question of coherence amongst the members of the congregation of the 'broad church' known as post-Keynesian economics is being discussed. The notion that post-Keynesian thought could be defined inclusively in terms of the Keynesian, Kaleckian and Sraffian strands emerged strongly from Geoff Harcourt and Omar Hamouda's (1988) well-known survey article on post-Keynesian economics. There the question of coherence between the three strands is not pursued in the context of the possibility of synthesising the strands into a coherent whole, but rather as a 'horses for courses' approach in which the various strands differed from one another because they were concerned with different issues and often different levels of abstraction of analysis. Intuitively, the basis for such a coalition would include a shared critique of the mainstream 'neoclassical' approaches, a closely aligned intellectual history, and the search for alternative methodological and theoretical foundations that reflected the shared ambitions and histories.

Subsequent developments would suggest, as King (2002: 205) observed, that the rather optimistic conclusion reached by Harcourt and Hamouda seems to have underestimated the degree of hostility between the three proposed post-Keynesian groups, and exaggerated the possibility of peaceful

[1] We would like to thank Geoff Harcourt for his helpful comments on an earlier draft of the paper.

coexistence between them. These conclusions would appear to apply most directly with respect to the Sraffians and the evolving Keynesian-Kaleckian alliance. Initial attempts by Joan Robinson in particular to establish meaningful linkages between the work of her close intellectual companion Piero Sraffa and those involved in the early development of a the Keynesian-Kaleckian approach that she had advocated proved to be rather unfruitful and were largely discarded by Robinson with some reluctance[2]. Nevertheless, as described by Gary Mongiovi (2012: 502), from 1960 until the mid-1980s, the affinities between the Keynes-Kalecki effective demand mechanism and Sraffa's work were not generally considered to be a matter of dispute; however, since then something of a rift has developed between the Sraffian camp and many of those who identify themselves with the post-Keynesian movement. The battle lines seem to have been drawn following the rather infamous Trieste summer school of 1985, where the intention had been to forge a unified methodological and analytical foundation for the post-Keynesian movement. Consequently, there has been very little constructive dialogue between the two groups, and textbook expositions of post-Keynesian economics rarely alluded to the positive contributions that may have been associated with the Sraffian research programs.

Despite these widely perceived divisions, an entry on Sraffian economics is to be found in *The Elgar Companion to Post-Keynesian Economics* (King 2003), with Mongiovi (2012: 502) arguing that despite the existence of 'genuine differences of perspective', these do not render the Sraffian and post-Keynesian traditions incompatible with each other, with at least some post-Keynesian resistance to the Sraffian view being 'based on a misunderstanding of it'. Similarly, three of the first four chapters in the first volume of the recently published *Oxford Handbook of Post-Keynesian Economics* (Harcourt and Kriesler 2013) are devoted to Sraffian economics and what are perceived to be its constructive connections with post-Keynesian economics and a potential Sraffa-Keynes synthesis[3]. However, all three papers start from a position that Sraffians are essentially distinct from post-Keynesians. Kurz's chapter in that volume locates a strong bond between Sraffa and post-Keynesians in 'their opposition to the marginalist or neoclassical theory' (Kurz 2013: 51), but sees them as being essentially different. The Arena and Blankenburg chapter considers possible approaches to derive a synthesis, but are critical of the Sraffian approach which utilises the 'long-period interpretation of

[2] The reasons for Robinson's reservations about formalising positive linkages between the work of Sraffa and the early Post-Keynesians are discussed in section 3. An example of such an attempt can be found in Bhadhuri and Robinson (1980). Particularly interesting discussion of the intellectual connections between Sraffa and Robinson can be found in Harcourt (1986) and Marcuzzo (2005), while Robinson's (1961) review of Sraffa (1960) underlines the importance she placed on Sraffa's critique of the marginalist approach.

[3] It should be noted that the Introduction to Harcourt and Kriesler (2103) states: "we need to point out that the inclusion of [Sraffa's contributions] as part of the core of post-Keynesian economics is not a universal view". (4) and it is clear that one of the editors (PK) sees "no role for … Sraffians …in post-Keynesian developments." (4)

Sraffa's production prices.' Concluding that 'it is difficult to see why gravitation theory would be fundamentally different from the theory of *tâtonnement* in general equilibrium theory' (Arena and Blankenburg 2013: 84). So it would appear that the question of coherence between Sraffian economics and the Keynesian-Kaleckian strand of post-Keynesian economics continues to attract considerable interest. This spirit of reconciliation also features prominently in a recent paper by Marc Lavoie (2010), where the question contained in the title 'Should Sraffian economics be dropped out of the post-Keynesian school?' is answered strongly in the negative:

> Thus in contrast to what has been claimed repeatedly, Sraffians and other post-Keynesians are brought together more than by their dislike of neoclassical economics. This dislike, as reflected in their critique of neoclassical economics, is more a source of tension than a source of unison. Despite appearance to the contrary, Sraffians and other post-Keynesians are brought together by their similarities in their positive contributions (Lavoie 2010: 12).

An important attempt to reconcile the analysis of post-Keynesians and Sraffians, and to make a case for 'the coherence of a complete system of post-Keynesian principles' (Harcourt and Kriesler 2013: 2) is the work of Henrich Bortis (see Bortis 2013 for the most recent statement). In his synthesis, there are three layers,: 'a long-period set of growth relations….a Robinsonian theory of the cycle, and short-period problems' (Harcourt and Kriesler 20131; 230). However, many of the incompatibilities identified below between the groups remain unsolved in this attempt, in particular, the problem of the coherence between the short-run and long- run analysis is not adequately addressed[4]. In addition, the assumption of given technology means that the competitive processes discussed below, associated with investment in research and technology as well as with investment in the most recent techniques of production, is problematic in his analysis.

It is argued in this paper that recent optimism concerning the establishment of coherence between the Keynesian-Kaleckian and Sraffian perspectives is misplaced, largely because of a failure to understand the substantial methodological issues which divide the two traditions. Much of this results from an unwillingness on the part of the Sraffians to embrace the implications arising from the Kaleckian insights that have displaced much of the 'Marshallian' (or, more accurately, Pigouvian) structure that came to be associated with Keynes' *General Theory*. The most significant implication arising from this relates to the different conceptions of competitive processes in modern capitalist economies, together with the question as to whether these forces can be associated with the generation of long-period equilibrium configurations. Indeed, from the Keynes-Kalecki perspective, it is the illegitimacy of drawing inferences from comparisons of long-period equilibrium positions which represents the most significant point of dispute between themselves and those working in the Sraffian tradition. In this respect, the post-Keynesian critique of the Sraffian analytical approach is not

[4] This point was made to us by Geoff Harcourt.

dissimilar to that which has been mounted against the more orthodox long-run equilibrium approaches founded on marginalist principles.

The arguments presented in the remainder of this paper are organised as follows. Section 2 will describe the various components that have come together form the Keynes-Kalecki strand of post-Keynesian economics. The substantive differences between this perspective and the Sraffian research programs are discussed in Section 3. The central conclusions of the paper are briefly re-stated in the final section.

2. The Keynesian-Kaleckian post-Keynesian perspective

Before proceeding with an indicative summary of the nature of the Keynesian-Kaleckian post-Keynesian perspective, it is important to consider the 'critique' element flowing from this school of thought. The critique has as a starting point objections to the usage of equilibrium analysis to investigate real world economies, and instead to place the analysis firmly within the realms of historical time. This line of thinking has links back to the Cambridge controversies over capital theory, and in particular to Robinson's perspective on these debates:

> The long wrangle about 'measuring capital' has been a great deal of fuss over a secondary question. The real source of trouble is the confusion between comparisons of equilibrium positions and the history of the process of accumulation …. We might suppose that we can take a number of still photographs of economies each in a stationary state; let us suppose that the 'measurement' problem can be solved by calculating all values in terms of labour time, and that it happens that the economies can be arranged in a series in which a larger value of capital per man employed is associated with a higher net output per man of a homogeneous consumption good, as on Professor Samuelson's 'Surrogate production function'. This is an allowable thought experiment. But it is not allowable to flip the stills through a projector to obtain a moving picture of a process of accumulation (Robinson 1974: 135)[5].

As had been emphasised earlier by Harcourt (1969: 398), it is the g*eneral methodolo*gy of neoclassical analysis, rather than any particular result, which basically is under attack. From this perspective, to the extent that equilibrium analysis finds any place within the analytical core of post-Keynesian economics, it is only short-period equilibrium that sometimes has an analytical role, and even then the significance of its propositions is largely in what they deny, rather than what they affirm (Robinson 1956: 57–60, Harcourt 1981) . Therefore, questions relating to the determination of economic aggregates cannot be usefully confronted within equilibrium-based analytical frameworks. Equally, a 'long-period' position cannot be contemplated as existing independently from 'short-run adjustments'

[5] For further discussion of the significance of this line of argument to the development of the strand of Post-Keynesian analysis under discussion see Setterfield (1995) and Harris (2005).

in a world in which change is cumulative in nature. This theme is most directly reflected in the dynamic analysis developed in the tradition of Richard Goodwin and (later) Michal Kalecki, where the inseparability of the cycle and the trend in terms of changes in aggregate output is emphasised. When considering the dynamics of economic change, it is the cumulative causation approach as championed by Nicholas Kaldor, following in the footsteps of Smith, Young, Myrdal and Veblen. that replaces the equilibrium-based theories that have dominated both 'old' and 'new' neoclassical models of economic growth. The implications towards an evaluation of the Sraffian research program arising from this perspective are considered directly in section 3.

Following Robinson's (1979: xviii) characterisation, 'Post-Keynesian theory has taken over, in the main, the hypotheses suggested by Keynes and Kalecki, and refined and enlarged them to deal with recent experience', with the assimilation of the ideas of Keynes and Kalecki very much orchestrated through Robinson's interpretative accounts of both of these seminal thinkers (Robinson 1964). The influence of Keynes is centred on his emphasis on the role of effective demand and the non-neutrality of money, decision-making under conditions of uncertainty, and the associated role of subjective and volatile expectations, all of which represented an attack on the validity of Say's law of markets. Within the modern post-Keynesian literature, the role of uncertainty has been accentuated in the writings of Paul Davidson (whose treatment of uncertainty followed in the tradition of George Shackle), where it was argued that Keynes' description of uncertainty matched technically with what mathematical statisticians call a non-ergodic stochastic system, in which one can never expect whatever data set exists today to provide a reliable guide to future outcomes (Davidson 2002: 187). Importantly, in such a world, markets cannot be efficient, and the non-ergodic dimension of the economic environment calls into question the validity of the assumption of rational expectations that has played a central role in a variety of mainstream macroeconomic frameworks (Davidson 1982–3).

Post-Keynesian economics is therefore concerned with understanding how economic processes function in the real world through historical time. Some of the underlying features are:

1. The denial of the validity or the usefulness of general theory:
2. The view of the economy as being a historical process, with the unchangeable past influencing the present, hence the key role of uncertainty:
3. Concern with historical time, the future is uncertain and expectations have a significant and unavoidable impact on economic events. The world is messy and the future uncertain.
4. The importance of institutions, economic and political forces in shaping economic events.
5. The central role of effective demand and of money/finance in determining the levels of employment and output.

Post-Keynesian economists all see the economy as being an historical process, and they attempt to understand how economic processes function in the real world in historical time. Their theory is always anchored in the real world, attempting to understand some specific aspect of capitalism. Because they are concerned with historical time, the future is uncertain and expectations have a significant and unavoidable impact on economic events.

Apart from his theoretical legacy, Keynes' influence on the post-Keynesians extended to an embrace of the general methodological position that Keynes had taken from Alfred Marshall. Keynes fully embraced Marshall's inclination to forgo analytical rigour in pursuit of increased realism, and adopted Marshall's partial (or 'particular') framework. Marshall had justified this on the grounds that economic problems needed to be treated 'a bit at a time', both by market participants and also by those who were seeking to analyse their behaviour. Keynes applied the partial analysis to reduce the complexities of time and uncertain knowledge in economics to manageable proportions. The role of money and the indeterminacy of expectations associated with uncertainty could not have been effectively portrayed within a general equilibrium framework. For these same reasons, partial analysis remains the chief analytical technique used by post-Keynesian economists, who emphasise mutual determination, with causality playing a key role. (Kriesler and Nevile 2002)

Keynes' theoretical structure has been refined and extended in a number of different directions by the post-Keynesians, perhaps most importantly in relation to the representation of financial markets and institutions. In the tradition of Keynes, the existence of uncertainty is re-emphasised as the key rationale for holding money as a store of value, playing a key role in connecting the irreversible past and uncertain future. Following from Kaldor's (1982) critique of the monetarist doctrines, the endogeneity of the money supply is stressed; with the money supply increasing as financial institutions make more loans available, leading to increased deposits in financial institutions and/or purchase of financial assets. These borrowing and lending decisions are based on expectations about the future and the cost of funds. Changes in the volume and composition of financial assets depend critically on the subjective perceptions on the part of lenders of the balance sheet positions of potential borrowers. The collective manner in which these perceptions are formed leads to alternating episodes of optimism and pessimism within financial markets, which may well amplify similar shifts in confidence within the real sectors of the economy. As was demonstrated emphatically in Hyman Minsky's (1982, 1985) financial instability hypothesis, real and financial sector instability are interconnected and inevitable characteristics of capitalist economies. Countervailing forces to endogenous instability are to be found in the operations of central banks and fiscal stabilisation policies (combined with the operation of automatic stabilisers).

As stated by Robinson, within the post-Keynesian literature, the conclusions derived from Keynes' macroeconomics are combined with similar conclusions flowing from Kalecki's work. Significantly, unlike Keynes' *General Theory*, Kalecki's theory of effective demand was constructed in the setting of conditions that explicitly departed from competitive markets and which emphasised links between short-period nominal output determination and the more dynamic questions of capital accumulation, income distribution, and economic growth[6]. It is primarily from themes associated with Kalecki's contributions that the post-Keynesian alternative to equilibrium-based theories of demand and supply reconciled relative prices is located. Following Kalecki's tradition, the industrial structure of an economy can be conveniently divided into two sectors. On the one hand, there is the 'flexible prices' sector consisting mainly of primary products and raw materials, where price determination does resemble Marshall's short-period analysis, with prices to a significant extent 'demand determined' due to a variety of factors that limit the capacity of supply to react to demand variations. On the other hand, the majority of goods and services are produced and traded in the 'fixed price' sector, characterised by imperfect competition and oligopolistic markets. The assumption of myopic profit-maximising behaviour is replaced with a notion of mark-up pricing where prices are depicted as being a 'mark-up' on expected average costs of production. The mark-up pricing principle generates a wide variety of alternative theories, each with different specifications of 'prime costs' and emphasising various factors that determine the mark-up applied to these costs. Kalecki's (1937) consideration of a corporation's internal and external financing requirements, and the role of the mark-up in influencing cash flows for the firm, establishes important linkages between pricing behaviour and investment decisions. In general, therefore, the mark-up pricing principle can be seen as 'rule of thumb' pricing routine adaptable to the variable and uncertain environment in which corporations seek to survive and grow. The 'full-cost' prices emerging from post-Keynesian theory should be viewed conceptually as non-equilibrium prices, playing the more dynamic role of reflecting and promoting change in the economy (Robinson 1961).

Kalecki's (1954, 1971) contributions in particular emphasised the importance of oligopolistic-type markets for the analysis of the industrial sector, characterised by the existence of excess capacity. Importantly, excess productive capacity is seen to be a characteristic of production within firms; however, excess capacity does not reflect 'sub-optimal' decisions, but instead the realities of decision-making under uncertainty. For given input prices, average costs of production are seen as being constant until full capacity is approached, and as a result demand pressures do not have a direct effect on prices unless this situation is encountered. The shift away from an emphasis on demand and supply

[6] A summary of the similarities and points of departure between the theories of effective demand developed by Keynes and Kalecki is presented in Kriesler (1997), with some interesting comparisons also found in Robinson's (1966) observations. See also Kalecki's review of Keynes' *General Theory*, in Targetti and Kinda-Hass (1982).

determined equilibrium prices and quantities results means that the macroeconomic analysis of output, employment, and general prices changes substantially, as is most cogently argued again in Kalecki's contributions. In the absence of demand pressures associated with the proximity of full capacity utilisation, inflationary pressures emerge largely from 'cost factors' such as raw material costs, import prices and wages. Importantly, it is the level of effective demand, rather than real wages, which determines the level of employment. Real wages are not primarily determined by market forces, but instead by the pricing behaviour outlined above and the bargaining processes related to the struggle between wages and profits for a share in national income. The outcomes of these processes depend very much on the institutional setting that has evolved through time, and also reinforces the classical and Kaleckian emphasis on the importance of income distribution in economic analysis. In more general terms, Kalecki's writings accentuate the significance of ideology and class in shaping economic thinking and behaviour, aspects which clearly are closely related to perceptions of the evolving nature of economic and social organisation.

As King (2002) observed, there has been some pockets of resistance within the post-Keynesian camp, flowing from what could be termed the 'fundamentalist Keynesians', to some elements of the evolving Keynes-Kalecki synthesis described above. These reservations were expressed most openly by Paul Davidson, and became more widely communicated in Davidson's (2003-4) review of King's historical accounts, which fuelled reactions by the likes of Lavoie (2005)[7]. The origins of Davidson's indifference towards the Kaleckian elements of post-Keynesian thought have been expressed in the following terms:

> I believe it is useless, if not senseless, to attack the mainstream's core propositions such as the assumption of maximizing behaviour of self-interested agents that result in equilibrium outcomes as unrealistic, and then urge a disequilibrium analysis instead. After all ... even if Keynes accepted this basic belief in maximization by self-interested decision-makers as a theoretical framework, he could nevertheless demonstrate that such a (fictional) market system would not (and could not) automatically adjust to a full employment equilibrium.' (Davidson 2003-4: 269).

Post-Keynesians readily accept the fact that Keynes' attack on Say's law and the prevailing orthodoxy was not founded on any particular assumptions about the nature of competitive forces and market

[7] See, for example, Davidson's reported statement that 'I don't think that Kalecki adds anything to the system' (King 1995: 29) and lack of reference to the work of Kalecki in the formal statement of his work, such as Davidson (1972). No connections between the work of Keynes and Kalecki are to found in Davidson's (2007) extensive account of Keynes' contributions and lasting legacy. As King (2002: 212) also suggests, a further reason for Davidson's 'hostility' to Kaleckian economics relates to political considerations, with Davidson (1972: 3-4) associating himself and the 'Keynes school' with the political centre, while the 'Kaleckians' were seen as being 'left of centre' and being overly concerned with class divisions and allied policy issues.

structure. As Keynes (1937: 213) had emphasised, the methods of classical economics were rendered unsuitable because of the fact that 'our knowledge of the future is fluctuating, vague and uncertain'. However, the point is that the simplistic and logically challenged 'Marshallian microeconomic foundations' that were (strategically) employed in Keynes' critique[8] have to be abandoned and replaced with observations that more closely reflect the realities of contemporary capitalist economies. It is in this respect that the insights developed by the likes of Kalecki and his followers have played an indispensable role in the development of post-Keynesian economics.

3. The Sraffian Research Programs and Post-Keynesian Economics

As is identified in the subtitle 'Prelude to a critique of economic theory', the major objective of Sraffa's (1960) *Production of Commodities* was to provide the ingredients for a more fully developed *critique* of the marginalist approach to value and distribution theory. While there are few direct attacks on the marginalist theories that were the subject of debate in the Cambridge controversies over capital theory, those that were made were emphatic[9]. As observed by Heinz Kurz (2013: 63), perhaps the most important conclusion that follows from Sraffa's analysis of the problem of the choice of technique is that Says Law of markets as envisaged by the marginalists cannot be sustained, because if we cannot rely upon the principle of substitution in production expressing the monotonic prejudice, then there is no reason to presume that the economy, if left by itself, will bring about a tendency to the full employment of all productive factors. This leads the Sraffians and 'other post-Keynesians' to reach agreement on fundamental issues such as the rejection of the notion that flexible money wages have the capacity to generate full employment, and also agree that it is variations in output rather than the rate of interest through which investment and saving may be equated.

The source of 'tension' between the Sraffians and 'other post-Keynesians' is identified by Lavoie as arising from different views as to why a lack of deterministic results prevails. As noted above, and flowing directly from Keynes, the Keynesian-Kaleckian perspective rests on notions of radical uncertainty and non-ergodicity. Sraffians tend to emphasise the lack of clear results that can be obtained outside of the core (which deals with the determination of 'normal prices'). Similarly, the existence of uncertainty and volatile expectations emphasises the key role played by money and finance within the Keynesian-Kaleckian coalition, while the attack on Say's Law of markets

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[8] Keynes was being tactical in showing that unemployment could still result, even allowing the main assumptions of the prevailing orthodoxy.

[9] No more so was his summary of the substantive 'capital reversal' conclusion: "The reversals in the direction of relative prices, in the face of unchanged methods of production, cannot be reconciled with *any* notion of capital as a measurable quantity independent of distribution and prices' (Sraffa 1960: 38, original emphasis). However, it is interesting to note that this passage was placed within parenthesis aside from the main text.

associated with the Sraffian tradition holds whether or not the economy utilises money or not (Mongiovi 2012: 503).

Given the fundamental importance of the analysis of money for post-Keynesian economists, the lack of a significant role for it within the Sraffian framework is a major difference with post-Keynesian economists who consider it a central feature of capitalist economies (Minsky1990: 368-71). Mongiovi 2012 argues that the Sraffian treatment of money is enough for it to be compatible with the post-Keynesian approach,. This position is firmly rejected by Minsky who argues that the post-Keynesian 'analytical framework … is one in which money, in the sense of the money that emerges within a full-bodied capitalist financial system, is there at the beginning., Money is not added onto an analysis that derives its essential propositions in a framework that abstracts from money and hopes that these propositions have some relevance for a monetary economy' (Minsky 1990: 370).

As is well known, Sraffa proceeded to develop his analysis in what he perceived to be the classical tradition, beginning with the meticulous edition of Ricardo's collected works (with the collaboration of Maurice Dobb). Subsequently, a group of economists have been working in the Sraffian tradition in order to provide models of modern capitalist economies. Central to this argument is the view that the tendency to a uniform rate of profits dominates other tendencies in contemporary capitalist economies, and that this tendency underlies the forces which allow for the establishment of long-period equilibrium positions. (King 2002: 209) As summarised by Tony Aspromourgos (2004), the contemporary Sraffian research programs investigate themes such as income distribution, relative commodity prices, output levels and employment and monetary phenomena and the real economy. These programs 'posit a set of solutions to the relationship between distribution and '*equilibrium*' (or more appropriately, 'normal') prices in production systems subject to competition', and that it is 'long-period distribution and value theory, which is at the heart of the Sraffian project (ibid: 181, 191, emphasis added). This clearly reflects Sraffa's endeavour to establish the relationships that must hold between commodities and wages and profits in capitalist economies in a long-period equilibrium configuration. Sraffa's analysis had been founded on the `classical' notion of `free' competition with its associated principle of the tendency towards profit equalisation in the long-period, and assumed that the level and composition of production as given for the purpose of his analysis. Within this setting, long-period positions could be characterised as corresponding to a situation where the structure of capacity has been adjusted to the structure of demand, and hence in which there is a uniform rate of profit in each line of production (Eatwell and Milgate 1983: preface). Essentially, it is the tendency towards a uniform rate of profits which provides the adjustment process of the economy to its long-period position, and market prices towards actual prices.

The forces of competition which established the uniform rate of profits and which brought market prices back to their natural values was the movement of capital in response to profit rate differentials. Sectors or industries which earned (for example) profits above those earned elsewhere would attract additional investment by existing firms and the entry of new firms in order to take advantage of those higher profits. The resulting increase in output would push market prices towards natural values, and profits in that sector back to the normal profit rate earned elsewhere in the economy. However, in a modern capitalist economy, investment does not simply increase output of commodities. Rather it is associated with research and development, and with the introduction of the latest techniques of production. As a result, processes of cumulative causation may lead to those sectors (or industries) increasing their competitive advantage and to associated structural change as these sectors grow and develop, with increased technical progress leading to the emergence of new sectors and products – as a result of that growth. (Young 1928). As a result, the forces which were supposed to push the economy to its long-period equilibrium are likely to, in fact, lead to greater and greater changes in the economy as these cumulative processes generate cumulative change. This suggests that path determinacy rather than long-period equilibrium positions are the appropriate way to analyse competitive processes.

The central objections to the method of analysis employed within the Sraffian research programs can be best understood in terms of concerns expressed by Robinson on the usefulness of the Sraffian framework to investigate actual economics processes. This was largely because the arguments were seen to be constructed in terms of comparisons of logically possible positions without the consideration of causation or change, as opposed to processes taking place in actual history:

> Sraffa habitually uses the language of change but, properly speaking, there are no events in his world except for the cycle of self-reproduction and the flow of net output to wages and net profits … there is no movement from one position to another, merely a comparison of positions corresponding to different levels of the rate of profits (Robinson 1980a: 139).
>
> All of this is a purely logical structure – an elaborate thought experiment. There is no causation and no change. At each moment, in any one system, the stock of inputs required for its technology and its growth rate has already come into existence, which implies that in the past, when stocks were being replaced, there must have been correct foresight of what 'today' would be like, so that the profit-maximizing variety of technology has been installed – in short the distinction between the future and the past, as viewed from 'today', has been abolished (Robinson 1980b: 132).

Robinson (1985: 165) later proposed a slightly more sympathetic evaluation of Sraffa's analytical framework by suggesting that 'we have a broad frame within which detailed studies of actual history can be carried out.' However, she went on to conclude that 'there does not seem to be much point in making further systematic generalizations', and that 'this is where Sraffa leaves us and hands us back to Keynes[10]'.

In his survey of Sraffian economics, Aspromourgos argues that 'the Sraffian project [is] open to 'history' in a substantial sense' (Aspromourgos 2004: 183), but this only seems to relate to how the exogenously determined distributive variable (the so-called "closure" issue) is determined. Unlike for post-Keynesian economics, history is not fundamental to Sraffian economics.

Sraffa's (classical) regime of free competition neglects the 'obstacles' to competition which Sraffa (1926: 522) had on a previous occasion argued 'are not of the nature of "frictions" ' but are themselves active forces which produce permanent and even cumulative effects'. These effects cannot simply be accounted for by replacing Sraffa's initial assumption of a uniform rate of profits with differential intra- and intersectoral rates of profits as suggested by Richard Arena and Stephanie Blankenburg (2013: 94). Monopoly capitalism is characterised by barriers to entry and the existence of excess capacity which exits because of uncertainty regarding future demand. These forces cannot be considered to be transitory in nature. Within this setting, prices in most sectors of the economy are based on mark-up on (expected) unit costs, where these mark-ups are influenced by prevailing and potential competitive pressures and the strategic goals of the firm including those associated with financing investment decisions. Firms are primarily concerned with survival and growth as opposed to the profit maximisation

Clearly, therefore the departures from free competition which characterise contemporary capitalist economies challenge the mechanisms through which market prices can be seen to gravitate towards production prices. Moreover, the influence of monopolistic elements on the pricing decisions of the firm has important implications for the realisation of the surplus. The problem of effective demand in modern capitalist economies requires a consideration of the effects of increases in the concentration of capital and economies of scale. Moreover, the capital flows that may occur between sectors are not simply associated with changes in the composition of output, as they also embody new techniques of production. It is not surprising, therefore that as Paolo Sylos-Labini (1985) observed, it is in the

[10] In this respect, Kalecki, who was to inspire much of Robinson's later work, was critical about Sraffa's price theory because it neglected aggregate demand (Nuti 1989: 319, Kowalik 2009: 114). As King 2002 highlights (209) this perspective was stated more forcefully by the prominent Post-Keynesian, Hyman Minsky (1990: 363), who argued that 'Sraffa says little or nothing about effective demand and Keynes's *General Theory* can be viewed as holding that the long run is not a fit subject for study. . .. At the arid level of Sraffa, the Keynesian view that effective demand reflects financial and monetary variables has no meaning, for there is no monetary or financial system in Sraffa.'

sphere of the growth process, particularly in the presence of technical progress, that the proposed extensions to Sraffa's framework have been least forthcoming. This is the result of Sraffian economists considering the central economic problem to be the analysis of intersectoral prices with a given output 'Price theory is the core of the analysis, and is perceived as being important in its own right. …. The classical [and post-Keynesian] dynamic concerns with accumulation and growth cannot be readily incorporated into the analysis, and pose insurmountable problems for the Sraffian analysis of price. … The Sraffa framework cannot incorporate changes in output or technology into its analysis of prices' (Kriesler 1992: 163-4).

In Sraffa's depiction of the determination of an economy, the system of production has already been determined in all possible spheres, with no role for individuals to influence the methods of production that are being used. The nature and transfer of knowledge between individuals and institutions are not considered, and the ever present forces that shape innovation and structural change have no place in Sraffa's system. These issues challenge the Sraffian notion that that market interaction is derived essentially from the structure of technology with the subjective 'mental determinants' playing only a relatively insignificant role (Marchionatti 2001: xxi).

The above discussion clearly raises fundamental questions relating to path dependency in the attainment of hypothesised long-period equilibrium price configurations. As writers such as Joseph Halevi and Peter Kriesler (1991) and Arena and Blankenburg (2013) have argued, steady-state balanced growth appears to be implied by any adjustment mechanism associated with the Sraffian system. However, Lavoie (2010: 21-22) has claimed that Sraffians have been unfairly criticised for neglecting the possibility of path-dependency, pointing to two (footnoted) references in the Sraffian literature where the possibility of path-dependency is recognised. However, as Arena and Blankenburg (2013: 96 n4) observed, 'to our knowledge neither of these authors has gone beyond the mere recognition of the possibility.' Until some coherent dynamic adjustment process can be specified which describes the 'traverse' from one equilibrium another in a manner that ensures that the traverse itself does not influence the final equilibrium point, the notion of a long-run equilibrium configuration that is determined independently from short-period adjustments and fluctuations will remain an elusive concept[11]. Instead, the Keynesian-Kaleckian-Robinsonian coalition embraces Kalecki's (1971: 165) view that 'In fact the long-run trend is but a slowly changing component of a chain of short-period situations; it is not a separate entity.' In order to develop an understanding of the dynamics that link these short-period situation, the institutional framework of a social system must be recognised as a fundamental element of the analysis. A consideration of these issues may be superfluous to the derivation of long-period equilibrium prices within the simplistic world constructed by the Sraffians;

[11] More general discussion of the significance of the traverse and path dependency in the Post-Keynesian literature can be found in Halevi et al (2013).

however, the purpose of economic analysis within the Keynesian-Kaleckian- Robinsonian tradition is to develop an understanding of actual economic processes embodied within modern capitalist societies.

4. Concluding comments

As emphasised above, Sraffian economists draw inferences about accumulation from comparisons of long-run equilibrium positions, using comparative static methodology. Underlying this is an implicit assumption that the path the economy takes between these equilibria will not influence the final position. However, this is the equivalent of placing the analysis in what Joan Robinson called logical time, and not in the historical time that post-Keynesian economists believe is the appropriate method to use. By doing so, they ignore at least three of the propositions which we earlier argued were the foundation of post-Keynesian analysis, namely, that accumulation should be viewed as a historical process, with the unchangeable past influencing the present, hence the key role of uncertainty; that this concern with historical time means that, because the future is uncertain expectations have a significant and unavoidable impact on economic events; and, finally, they ignore the importance of institutions, economic and political forces in shaping economic events.

For Sraffian economists, uncertainty remains a peripheral issue, with Mongiovi even arguing that its central role in post-Keynesian analysis is due to methodical errors: 'One of the reasons the post Keynesian literature relies so heavily on the pervasiveness of uncertainty is that it is not solidly grounded in a theory of value and distribution' (Mongiovi 2012: 503). This statement both misunderstands the importance of the analysis of price and distribution for post-Keynesian economists, but also totally lacks insight into what post-Keynesian economists see as the essential elements of capitalist economies. Certainly in a world where there is a strong tendency towards long-period equilibrium which is independent of the path that the economy takes to get there, and which economic agents may be aware of, then there's no room for uncertainty as the potential outcome is determined, and there is also little room for money. (Bortis 2013: 328). However, in any realistic model, such as Keynes and post-Keynesians prefer, uncertainty permeates all decision-making. In fact, the essence of post-Keynesian models of pricing, investment and distribution stress the importance of these processes occurring as an historical process, with uncertainty permeating all aspects of the decision making process (for an excellent survey of the post-Keynesian approach to pricing see Coutts and Norman 2013). The unimportance of uncertainty for Sraffian economists, on the other hand, is strongly related to the long-period method and the lack of path determinacy in their models. Related to this is the role of money, which occupies a central position for post-Keynesian economists, as reflecting an essential element of capitalist economies. For Sraffian economists, money, like history, mainly enters in the question of exogenous closure. As Minsky 1990 so forcibly argued, money is not part of their essential vision of capitalist economies – it is an afterthought.

For these reasons, Lavoie's conclusion that Sraffians and other post-Keynesians are brought together by their similarities in their positive contributions cannot be supported in the setting of the post-Keynesian perspective described in this chapter. In this context, the following observations presented by Maurice Dobb are pertinent:

> … to my mind, the whole issue has been misrepresented by the critics through their failure to appreciate the specific design and intention of Sraffa's work (as represented, *e.g*., in the sub-title of his book, 'Prelude to a Critique of Economic Theory') … The design and intention was, in effect, to answer certain major critiques of Marx (and by implication of the whole Ricardo – Marx approach) from Bohm-Bawerk onwards …. In this sense his work is to be regarded as primarily constructive *anti-kritik*, and not as a new theoretical system, replacing or mediating between its predecessors (Dobb 1975–6: 468, original emphasis).

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